



NuTAP-S61

User's Manual

Foreword

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Revision History

Date	Version	History
2010/09/26	1.0	First draft version
2010/10/28	1.0	Remove “Draft” watermark.
2010/12/13	1.1	Correcting typos/errors in NuSet-MiniTAP section. For more detail, please refer to NuSet-MiniTAP Revision History.
2011/07/28	1.2	<ol style="list-style-type: none">1. Change Xtramus logo on page 1.2. Apply the new USM format.3. Page 6, changing UTP Port to RJ45 Port.4. Page 6, changing 32-bit to 48-bit.5. Page 6, adding multi-language feature.

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1. NuTAP-S61 Overview

1.1. General Description of NuTAP-S61

NuTAP-S61 is a portable network TAP device. Embedded with 2 Network Ports and 2 Monitor Ports, NuTAP-S61 can monitor and redirect any data streams which flow through it. Moreover, NuTAP-S61's Console Port allows users to access test data and configure test variables while serving as an optional power source for NuTAP-S61.

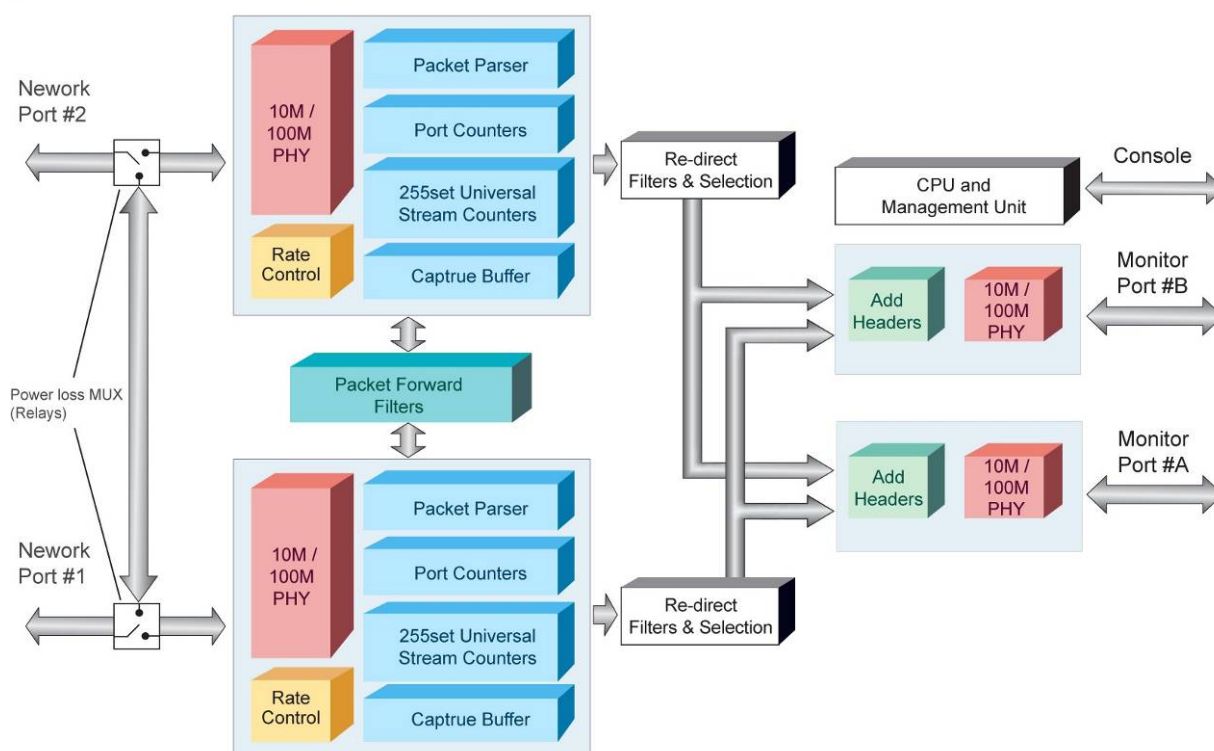
Network TAP is a hardware device which allows monitoring data flows in a network environment dynamically without any interference.

As mentioned above, NuTAP-S61 is embedded with two Network Ports and is capable of monitoring all data flows between two network points. All data traffic flows between NuTAP-S61's Network Port A0 and A1 can be brought out for further analysis and research dynamically and without intervening network environment.

NuTAP-S61 is a compact, lightweight, and highly cost-effective device that provides 3 different filters for users to choose: Forwarding Filter, Re-Direct Filter, and Capture Criteria. All these filters are powered by Xtramus SDFR (Self-Discover Filtering Rules), which makes packet capturing/filtering over Ethernet easy and convenient.



NuTAP-S61 block diagram



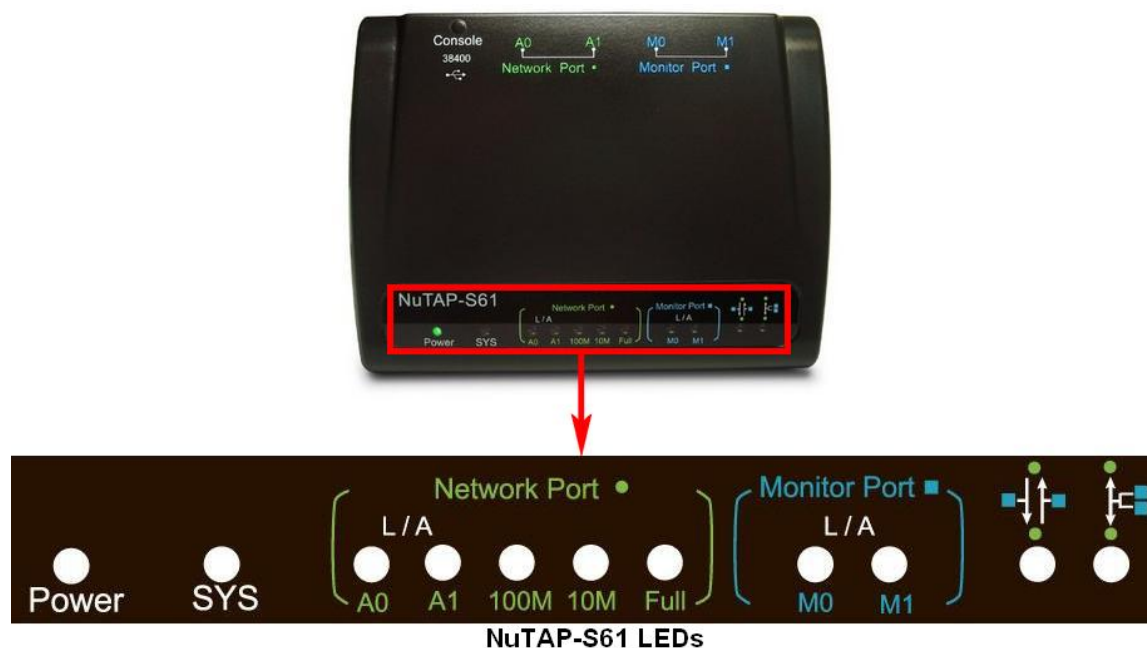
1.2. Key Features of NuTAP-S61

- Portable and light-weighted, with high-performance and reliable test results
- Filter and redirect TAP streams to monitor port by **SDFR** technique which can ease the loading of monitor PC
- **SDFR (Self-Discover Filtering Rules)**, a set of filtering rules including **Destination Address**, **Source Address**, **VLAN**, **Destination IP**, **Source IP**, **Destination Port**, and **Source Port**
- 2 Network Ports and 2 Monitor Ports of 10/100 Mbps RJ45 Ethernet port
- 1 Console Port which allows users configuring test variables, accessing test results, upgrading firmware/FPGA, and serving as NuTAP-S61's optional power source while connected to PC with a RJ45-to-USB cable *
- Both Network Ports support **Universal Stream Counter (USC)**, each **USC** can contain up to 256 sets of statistics (up to 48-bits) including **Packets**, **Bytes**, **Packet Broadcast**, **CRC Error**, **IPCS Error**, **Packet Multicast**, and **Transferring Rate**
- Utility software **NuSet-MiniTAP** that runs under Windows environment. When connecting NuTAP-S61 with your PC via an RJ45-to-USB cable, it allows users to:
 - Upgrading NuTAP-S61's firmware and FPGA
 - Monitoring data flows in the network environment
 - Configuring test settings and accessing test results
 - Setting 2 sets of Session Filter including Port A → Port B and Port B → Port A
 - Setting SDFR (Self-Discover Filtering Rules). SDFR is a set of filtering rules including Packets, Bytes, Packet Broadcast, CRC Error, IPCS Error, Packet Multicast, and Transferring Rate
 - Supports multi-language user-interface including Simplified Chinese and English
- Reset Button which allows users to reset all NuTAP-S61's settings back to default value
- Utility Software that supports multi-language user-interface including Simplified Chinese and English

*Note: When using Console Port as NuTAP-S61's power source, please use the RJ45-to-USB cable that comes with NuTAP-S61 package. Extending the length of RJ45-to-USB cable might cause NuTAP-S61 power insufficient.

1.3. NuTAP-S61 Panel Function Overview

Front Panel



Description – Front Panel LED			
LED		Status	Description
General	Power	Green ON	NuTAP-S61 is power on.
		OFF	NuTAP-S61 is power off.
	SYS	Green ON	NuTAP-S61 is booting properly and is ready for tests.
		Amber ON	Error occurred while NuTAP-S61 is booting.
Network Port	A0/A1	Green ON	A0/A1 is connected to PC or network.
		Green Blinking	A0/A1 is transmitting or receiving packets.
	100M/10M	Green ON	The Network Port is running under 100M/10M Tx rate.
		Green ON	The Network Ports is running Full-Duplex mode.
	Full	OFF	The Network Ports is running Half-Duplex mode.
Monitor Port	M0/M1	Green ON	M0/M1 is connected to PC or network.
		Green Blinking	M0/M1 is transmitting or receiving packets.
Re-Direct Filter	Segregate	Green ON	NuTAP-S61 is running under Segregate Mode .
	Aggregate	Green ON	NuTAP-S61 is running under Aggregate Mode .

Left/Right Panel



Description – Left Panel Power Jack

Power Jack	12V DC Power Jack × 1
Reset Button	To reset NuTAP-S61's settings to default value, please press and hold the Reset Button for 4 seconds. NuTAP-S61 will reset all settings to default after a long beep.

Back Panel & Ports



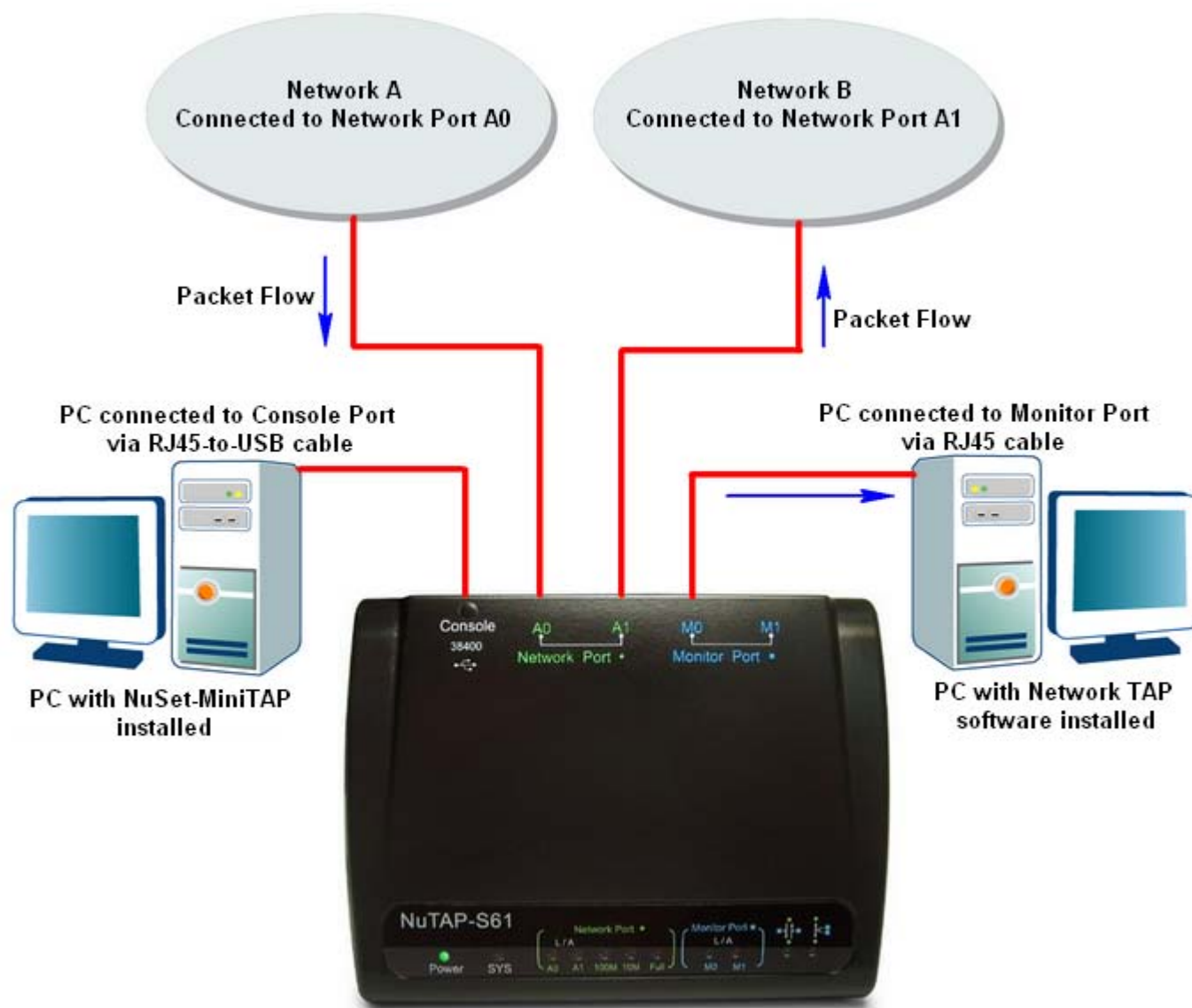
Description – Back Panel & Ports

Console Port	UTP Port for Firmware/FPGA Upgrading, Configuration Setting, and NuTAP-S61 Power Supply*.
Network Port A0/A1	These two 10/100 Mbps Full Ethernet UTP Network Ports can transmit/receive test packets generated by NuTAP-S61.
Monitor Port M0/M1	These two 10/100 Mbps Full Ethernet UTP Monitor Ports can monitor/capture test packets transmitted from Network Ports.

* Note: When using Console Port as NuTAP-S61's power source, please use the RJ45-to-USB cable that comes with NuTAP-S61 package. Extending the length of RJ45-to-USB cable might cause NuTAP-S61 power insufficient.

2. NuTAP-S61 Application Example & Hardware Installation

2.1. Hardware Installation for Network Tapping



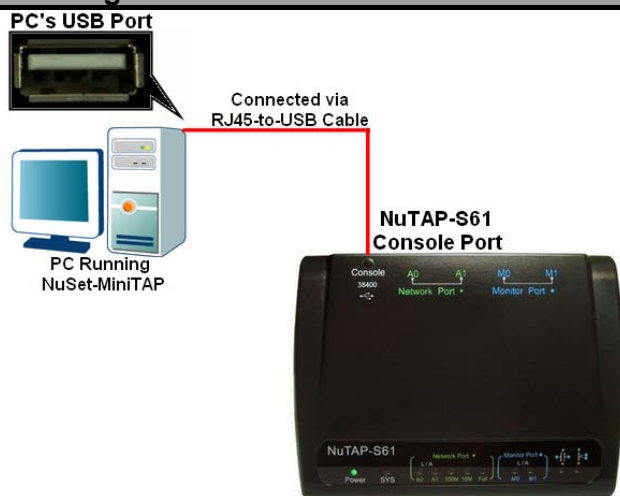
As the example shown in the figure above, NuTAP-S61 allows you to perform network tapping. You can monitor/filter packets that meet the criteria by:

- Connecting NuTAP-S61's **Console Port** to a PC with NuSet-MiniTAP installed via a RJ45-to-USB cable.
- Connecting NuTAP-S61's **Monitor Port** (M0 or M1, depending on your settings) to a PC with other network TAP software installed via an RJ45 cable.

2.2. Hardware Installation for NuTAP-S61 Management

There are 3 different ways to connect NuTAP-S61 to your PC and configure/view its settings:

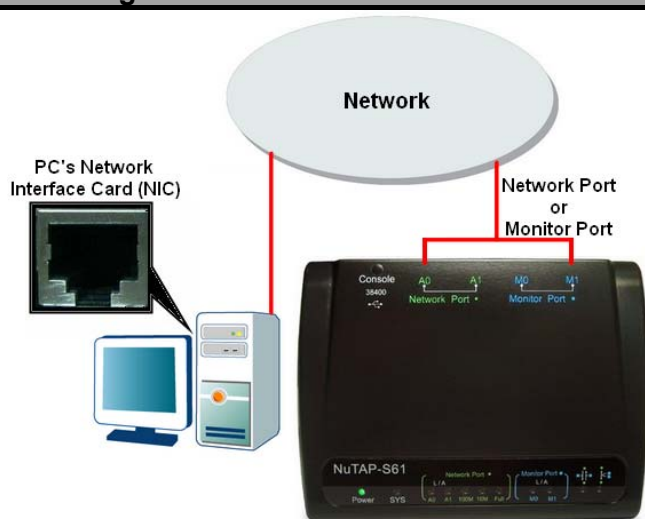
Connecting via RJ45-to-USB Cable



By connecting NuTAP-S61's **Console Port** to **PC's USB Port** via **RJ45-to-USB** cable, you can configure/view NuTAP-S61's settings with NuSet-MiniTAP installed on your PC.

Also, the **RJ45-to-USB** cable will serve as NuTAP-S61's power source as well.

Connecting via RJ45 Cable

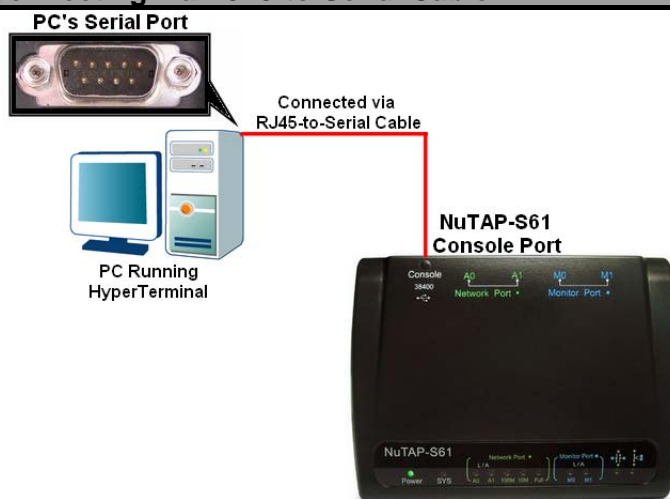


By connecting NuTAP-S61 and PC to the **same network**, you can configure/view NuTAP-S61's settings with the web browser installed on your PC.

To access NuTAP-S61's configuration webpage with your PC's web browser, please connect one of NuTAP-S61 **Network Port (A0/A1)** or **Monitor Port (M0/M1)** to the network which your PC is connected to.

Please note that under this mode, you have to plug NuTAP-S61's power adapter.

Connecting via RJ45-to-Serial Cable



By connecting NuTAP-S61's **Console Port** to **PC's Serial Port** via **RJ45-to-Serial** cable, you can configure/view NuTAP-S61's settings with **HyperTerminal** softwares installed on your PC.

Please note that under this mode, you have to plug NuTAP-S61's power adapter.

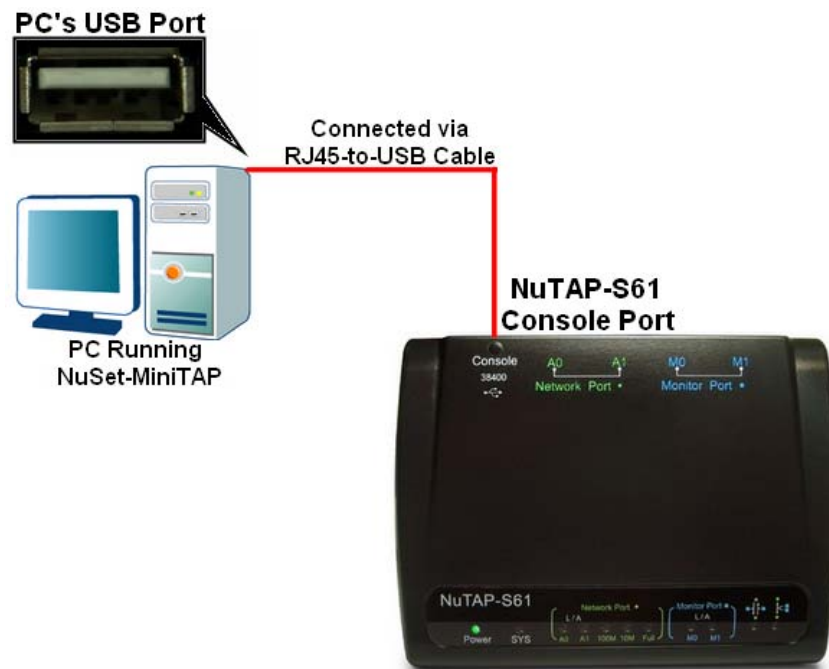
3. NuTAP-S61 Management

As mentioned in 2.2. **Hardware Installation for NuTAP-S61 Management**, you can configure NuTAP-S61's settings and view statistics generated while performing network tapping with NuTAP-S61 by:

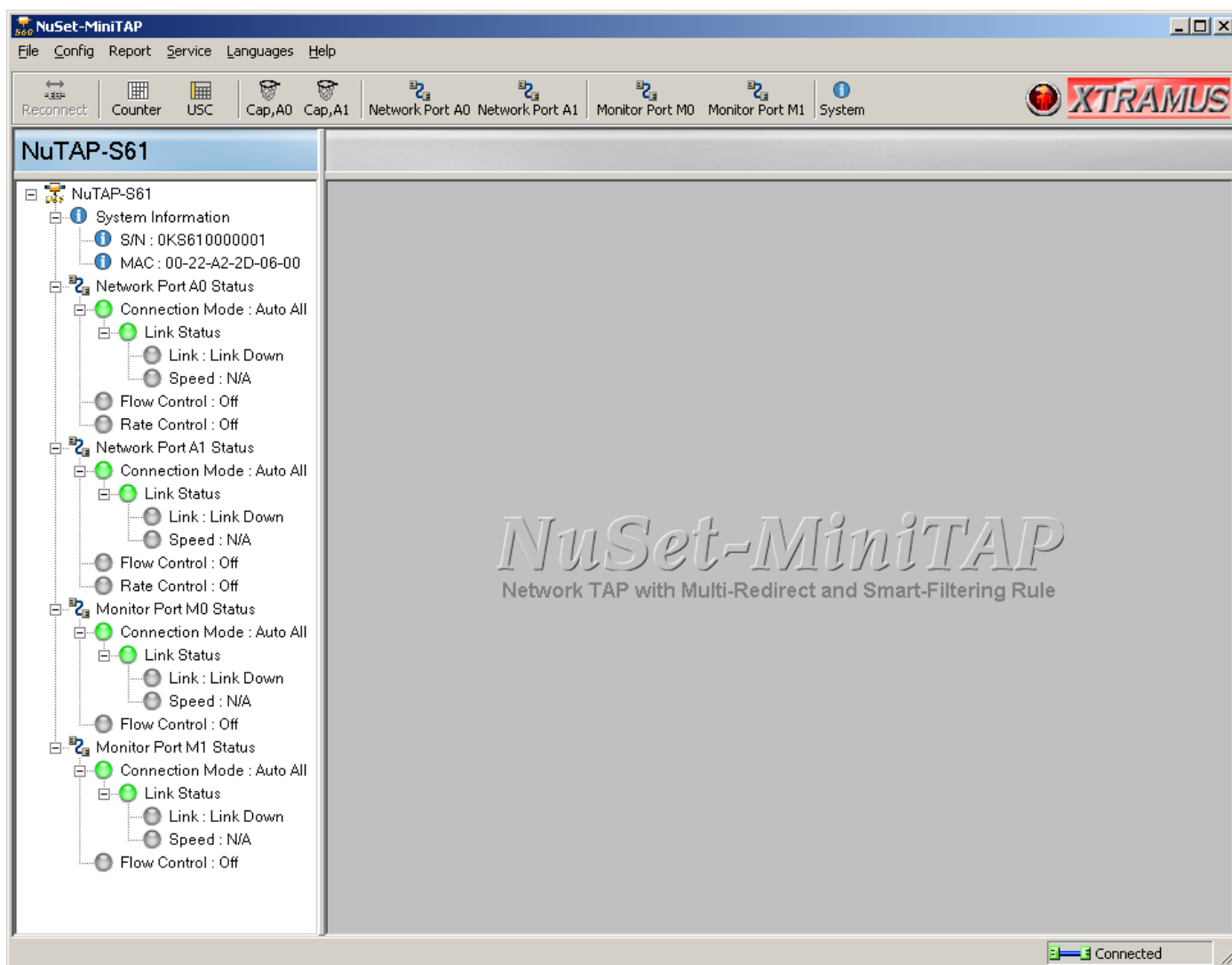
- Connecting NuTAP-S61 to PC via an RJ45-to-USB cable, and accessing NuTAP-S61's settings/statistics with **NuSet-MiniTAP** installed on PC.
- Connecting NuTAP-S61 and PC to the same network via an RJ45 cable, and accessing NuTAP-S61's settings/statistics with **PC's web browser**.
- Connecting NuTAP-S61 and PC via an RJ45-to-Serial cable, and accessing NuTAP-S61's settings/statistics with **HyperTerminal**.

Please see the sections down below for more information regarding to NuTAP-S61 management.

3.1. Managing NuTAP-S61 with NuSet-MiniTAP



NuTAP-S61 comes with GUI (Graphic User Interface) utility software **NuSet-MiniTAP** for setting test criteria and system management. Please note that you have to connect NuTAP-S61 to your PC with an **RJ45-to-USB** cable as shown in the figure above.



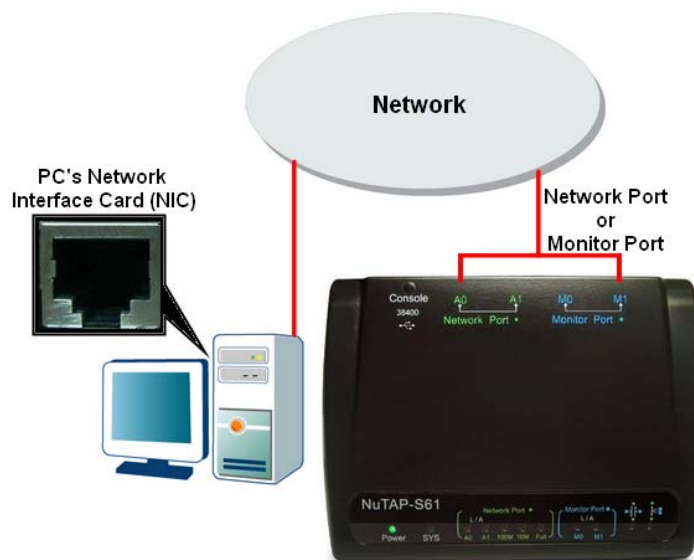
When NuTAP-S61 is connected with PC via its **RJ45-to-USB** cable, you can set test criteria, save/view testing logs, and upgrade NuTAP-S61's firmware/FPGA with **NuSet-MiniTAP**.

However, before using **NuSet-MiniTAP**'s features and functions, you have to install it on your PC first.

NuTAP-S61's driver is contained in NuTAP-S61's utility software. Both NuTAP-S61's driver and utility software will be installed at the same time. Please note that DO NOT connect your NuTAP-S61 to the PC via RJ45-to-USB cable before the installation.

For more detailed descriptions about installing **NuSet-MiniTAP** and its functions, please refer to **NuSet-MiniTAP User's Manual** on page 35.

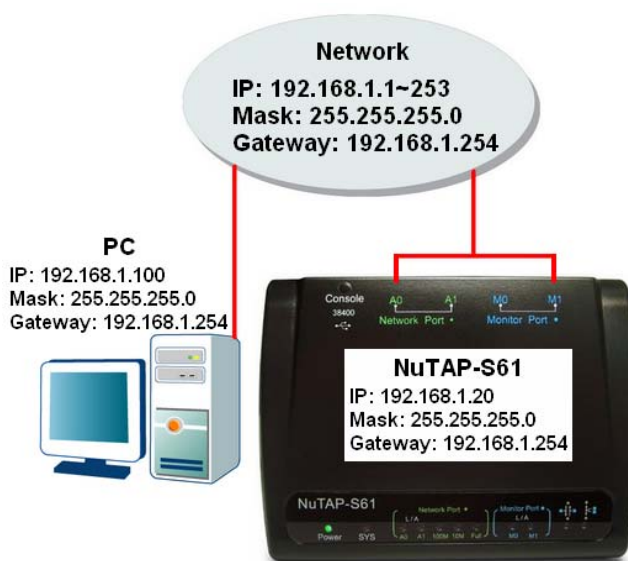
3.2. Managing NuTAP-S61 with PC's Web Browser



NuTAP-S61 is embedded with a configuration webpage, and can be accessed by connecting one of NuTAP-S61 **Network Port (A0/A1)** or **Monitor Port (M0/M1)** to the network which your PC is connected to, as shown in the figure above.


Before accessing to NuTAP-S61's configuration webpage with your PC's web browser, please set NuTAP-S61's IP, subnet mask, and gateway addresses with **NuTAP-S60_310 Utility** according to the network that NuTAP-S61 is connected to. For more information regarding to set NuTAP-S61's IP/subnet mask/gateway addresses, please refer to "**4. NuTAP-S60_310 Utility**".

The figure down below is an **example** for setting NuTAP-S61's IP, subnet mask, and gateway addresses base on network/PC settings. The settings in the figure down below will be used as configuration example in the following sections of this manual as well. However, **please note that the settings demonstrated here might not work with your network environment.**



3.2.1. Accessing NuTAP-S61 Configuration Webpage

To access NuTAP-S61's configuration webpage, please open your web browser, and type in NuTAP-S61's IP address in web browser's URL field as shown in the figure

 192.168.1.20

on the right side. **Please note that the IP address inputted here is only an example, and may not apply to your network environment.**

NuTAP-S61's configuration webpage only supports Microsoft Internet Explorer®, and NuTAP-S61's configuration webpage might not display correctly if you're using other web browser.

A window will pop up after you entering NuTAP-S61's IP address. Please enter the User Name and Password for NuTAP-S61's configuration webpage.

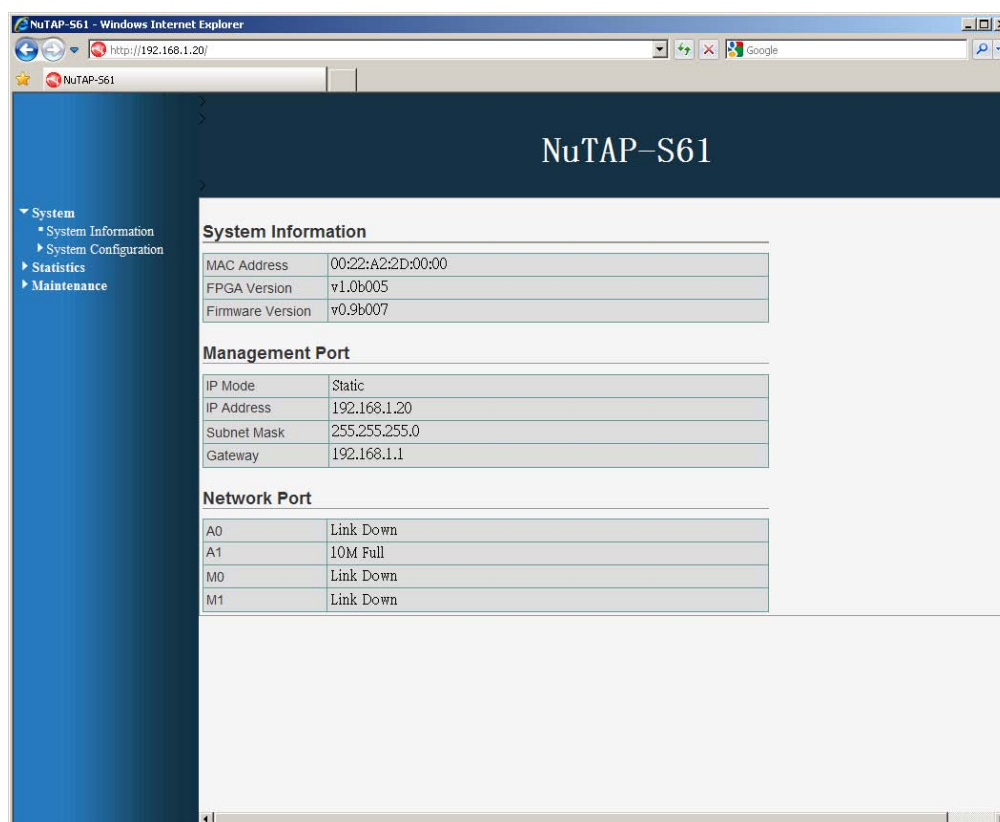
- **Default User Name: admin**
- **Default Password: admin***

*Please note that the User Name and Password are case-sensitive.



For safety issues, it is highly recommended that you should change the User name and Password when logging to NuTAP-S61's configuration webpage for the first time. Please refer to “**B. User Settings**” on **Page 19** for more detail descriptions about how to change NuTAP-S61's User Name and Password.

After inputting NuTAP-S61 configuration webpage's User Name and Password, you should be able to see NuTAP-S61's configuration webpage displayed on your web browser as shown in the figure down below.



3.2.2. NuTAP-S61 Configuration Webpage – Overview

NuTAP-S61

A - System
Statistics
Maintenance

System Information

MAC Address	00:22:A2:2D:00:00
FPGA Version	v1.0b005
Firmware Version	v0.9b007

Management Port

IP Mode	Static
IP Address	192.168.1.20
Subnet Mask	255.255.255.0
Gateway	192.168.1.1

Network Port

A0	Link Down
A1	Link Down
M0	100M Full
M1	Link Down

B

NuTAP-S61 Configuration Webpage Overview

A	Setting Options	<p>The Setting Options contains options for NuTAP-S61's settings, information, and statistics, which can be divided into:</p> <ul style="list-style-type: none"> • System: You can set NuTAP-S61's basic system settings, or view system information with this option. • Statistics: You can view NuTAP-S61's counter/Universal Streams Counter reports with this option. • Maintenance: This option allows you to save system settings, reboot NuTAP-S61, and reset all NuTAP-S61's settings to default value.
B	Main Display Screen	<p>The Main Display Screen displays the system information, network tapping statistics, and detail configuration options.</p>

3.2.3. NuTAP-S61 Configuration Webpage – System

System Information

System Information

MAC Address	00:22:A2:2D:00:00
FPGA Version	v1.0b005
Firmware Version	v0.9b007

Management Port

IP Mode	Static
IP Address	192.168.1.20
Subnet Mask	255.255.255.0
Gateway	192.168.1.1

Network Port

A0	Link Down
A1	10M Full
M0	Link Down
M1	Link Down

System Information displays NuTAP-S61's system information including:

System Information	
MAC Address	NuTAP-S61's MAC address.
FPGA Version	NuTAP-S61's current FPGA (Field-Programmable Gate Array) version.
Firmware Version	NuTAP-S61's current firmware version.
Management Port	
IP Mode	<p>This field displays how NuTAP-S61 acquires its IP address.</p> <ul style="list-style-type: none"> Static: NuTAP-S61's IP, subnet mask, and gateway addresses are assigned manually. DHCP: NuTAP-S61's IP, subnet mask, and gateway addresses are assigned automatically by a DHCP server.
IP Address	NuTAP-S61's IP address.
Subnet Mask	NuTAP-S61's subnet mask.
Gateway	NuTAP-S61's gateway address.
Network Port	
A0/A1	Link status of NuTAP-S61's Network Port A0/A1.
M0/M1	Link status of NuTAP-S61's Monitor Port M0/M1.

System Configuration

There are 3 options available for **System Configuration**, which includes:

- **IP Settings:** Allows you to set how NuTAP-S61 will acquire its IP, subnet mask, and gateway addresses. Also, you could input these addresses manually here.
- **User Settings:** Allows you to change NuTAP-S61's configuration webpage User Name and Password.
- **Device Name:** You can assign an alias for NuTAP-S61 here.

Please see the sections for detail descriptions about settings available in **System Configuration**:

A. IP Settings

IP Configuration	
IP Mode	<input checked="" type="radio"/> Static <input type="radio"/> DHCP
IP Address	<input type="text" value="192.168.1.20"/>
Subnet Mask	<input type="text" value="255.255.255.0"/>
Gateway	<input type="text" value="192.168.1.1"/>
<input type="button" value="Apply"/>	

IP Settings	
IP Mode	You can choose how NuTAP-S61 acquires its IP, subnet mask, and gateway addresses. There are two modes available: <ul style="list-style-type: none">• Static: You have to input NuTAP-S61's IP, subnet mask, and gateway addresses manually in the fields down below.• DHCP: NuTAP-S61 acquires its IP, subnet mask, and gateway addresses automatically from network's DHCP server.
IP Address	You can input NuTAP-S61's IP address here in this field.
Subnet Mask	You can input NuTAP-S61's subnet mask here in this field.
Gateway	You can input NuTAP-S61's gateway address here in this field.
Apply	Apply the changes you've made here.

* Note: The settings in the figure above are only examples, and might not work with your network environment.

B. User Settings

Administrator	
User Name	<input type="text"/>
New Password	<input type="password"/>
Confirm New Password	<input type="password"/>
<input type="button" value="Apply"/>	

Guest	
User Name	<input type="text"/>
New Password	<input type="password"/>
Confirm New Password	<input type="password"/>
<input type="button" value="Apply"/>	

For issues regarding to system security, NuTAP-S61 has 2 different user security levels, which are:

- **Administrator:** User with **Administrator** privilege can change NuTAP-S61 system settings and view system information/statistics.
- **Guest:** User with **Guest** privilege can only view system information/statistics.

User Settings for Administrator/Guest	
User Name	Input the user name here in this field.
New Password	Input the password here in this field. Please note that the password must contain at least 5 alphanumeric characters and is case sensitive.
Confirm New Password	Please input the password here again for confirmation.
Apply	Apply the changes you've made here.

C. Device Name

Device Name	
Device Name	<input type="text" value="NuTAP-S61"/>
<input type="button" value="Apply"/>	

Device Name	
Device Name	Input the alias for NuTAP-S61 here in this field.
Apply	Apply the changes you've made here.

3.2.4. NuTAP-S61 Configuration Webpage – Statistics

Counter Report

The **Counter Report** can display statistics reports of NuTAP-S61's **Network Port** or **Monitor Port**.

				Refresh	Clear
Port Statistics					
	Port A0	Port A1	Total		
Link Status	Link Down	Link up	n/a		
Speed	--	--	n/a		
Tx:Packet	191	0	191		
Tx:Byte	27,076	0	27,076		
Tx:Line Rate	0Kbps	0Kbps	n/a		
Tx:Utilization(%)	0%	0%	n/a		
Tx:Pause	0	0	0		
Rx:Packet	0	34	34		
Rx:Byte	0	5,910	5,910		
Rx:Line Rate	0Kbps	0Kbps	n/a		
Rx:Utilization(%)	0%	0%	n/a		
Rx:Pause	0	0	0		
Tx:Collision	0	0	0		
Tx:Single Collision	0	0	0		
Tx:Multi-Collision	0	0	0		
Tx:Excession-Collision	0	0	0		
Rx:Dribble Error	0	0	0		
Rx:Alignmeng Error	0	0	0		
Rx:CRC Error	0	0	0		
				Refresh	Clear
Monitor Port Statistics					
	Port M0	Port M1	Total		
Link Status	Link Down	Link Down	n/a		
Speed	--	--	n/a		
Tx:Packet	0	0	0		
Tx:Byte	0	0	0		
Tx:Packet Rate(pps)	0	0	0		
Tx:Line Rate	0Kbps	0Kbps	n/a		
Tx:Utilization(%)	0%	0%	n/a		
Tx:Pause	0	0	0		
Rx:Byte	0	0	0		
Rx:Packet Rate(pps)	0	0	0		
Rx:Line Rate	0Kbps	0Kbps	n/a		
Rx:Utilization(%)	0%	0%	n/a		
Rx:Pause	0	0	0		
Tx:Collision Packet	0	0	0		
Tx:Collision Times	0	0	0		
Rx:Broadcast	0	0	0		
Rx:Unicast	0	0	0		
				Refresh	Clear

Network Port/Monitor Port Statistics

Refresh	Refresh the configuration webpage and update the latest statistics.
Clear	Clear all statistics displayed in the table.

USC Counter

When monitoring data flows in a network environment with Network TAP devices, it is common to use packet analyzers (or sniffers) for capturing and analyzing packet frames. However, information acquired this way may be too vast and complicated for pinpointing the possible cause of network/product problems.

Unlike these common packet analyzers or sniffers mentioned above, **Universal Stream Counter (USC)** offers real-time statistics of network events during packet monitoring and capturing.

Each of NuTAP-S61's Network Port contains two sets of **Universal Stream Counters (USC 0/1)**, and statistics about **Line Rate, Packets, Bytes, Broadcast, Multi-cast, IP Check sum Error, and CRC Error** of all **DA (Destination Address)** can be viewed here in this page.

Universal Stream Counter 0 for Port A0							Refresh	Clear
DA	Line Rate	Packets	Bytes	Broadcast	Multicast	IP Checksum Error	CRC Error	
xx-xx-00-00-00-00	0Kbps	0	0	0	0	0	0	
xx-xx-00-00-00-01	0Kbps	0	0	0	0	0	0	
xx-xx-00-00-00-02	0Kbps	0	0	0	0	0	0	
xx-xx-00-00-00-03	0Kbps	0	0	0	0	0	0	
xx-xx-00-00-00-04	0Kbps	0	0	0	0	0	0	
xx-xx-00-00-00-05	0Kbps	0	0	0	0	0	0	
xx-xx-00-00-00-06	0Kbps	0	0	0	0	0	0	
xx-xx-00-00-00-07	0Kbps	0	0	0	0	0	0	
xx-xx-00-00-00-08	0Kbps	0	0	0	0	0	0	
xx-xx-00-00-00-09	0Kbps	0	0	0	0	0	0	
xx-xx-00-00-00-0A	0Kbps	0	0	0	0	0	0	
xx-xx-00-00-00-0B	0Kbps	0	0	0	0	0	0	
xx-xx-00-00-00-0C	0Kbps	0	0	0	0	0	0	
xx-xx-00-00-00-0D	0Kbps	0	0	0	0	0	0	
xx-xx-00-00-00-0E	0Kbps	0	0	0	0	0	0	
xx-xx-00-00-00-0F	0Kbps	0	0	0	0	0	0	
xx-xx-00-00-00-10	0Kbps	0	0	0	0	0	0	
xx-xx-00-00-00-11	0Kbps	0	0	0	0	0	0	
xx-xx-00-00-00-12	0Kbps	0	0	0	0	0	0	
xx-xx-00-00-00-13	0Kbps	0	0	0	0	0	0	

USC Counter

Refresh	Refresh the configuration webpage and update the latest statistics.
Clear	Clear all statistics displayed in the table.

3.2.5. NuTAP-S61 Configuration Webpage – Maintenance

Four options are available in the **Maintenance** configuration webpage: **Save Changes**, **System Reboot**, **Factory Defaults**, and **Logout**.

Save Changes

Save Changes

The device configuration will be saved to NV-RAM !

Save

Save Changes

Save

If you don't save the setting you've made via NuTAP-S61's configuration webpage, all settings will be erased after rebooting NuTAP-S61. Please click the "**Save**" button to save the settings to NuTAP-S61's NV-RAM.

System Reboot

System Reboot

System reboot

Warning! System will reboot! All unsaved data/settings will be lost after system reboot.

Reboot

System Reboot

Reboot

You can reboot NuTAP-S61 by clicking the "**Reboot**" button. Please note that all unsaved settings will be lost after system reboot.

Factory Defaults

Restore Default Settings

Restore Default Settings

Warning! System will restore all settings to default! All unsaved data/setting will be lost after restore to default setting.

Restore

Factory Defaults

Restore

You can set all NuTAP-S61's settings to the default value by clicking the "**Restore**" button. Please note that all unsaved data/settings will be lost after restoring NuTAP-S61's settings to default value.

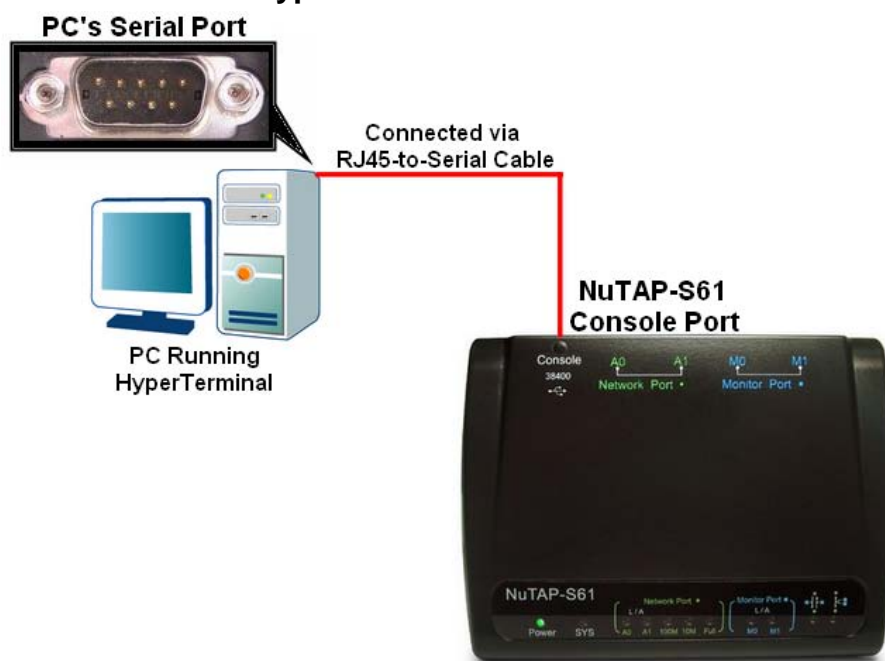
Logout

Logout Success !

Logout

This function allows you to log out and leave NuTAP-S61's configuration webpage. You have to login again once you've logged out.

3.3. Managing NuTAP-S61 with HyperTerminal



NuTAP-S61 allows users to make system configurations, view test statistics/system information with **HyperTerminal**. To access NuTAP-S61 via **HyperTerminal**, you have to connect NuTAP-S61's **Console Port** with **PC's Serial Port** via an **RJ45-to-Serial cable** as shown in the figure above.

3.3.1. HyperTerminal Settings for NuTAP-S61

After connecting the **PC's serial port** to NuTAP-S61's **Console Port** via an **RJ45-to-Serial cable**, please start the **HyperTerminal** software installed on your PC and establish connection according to the steps listed down below.

Establishing Connection with NuTAP-S61

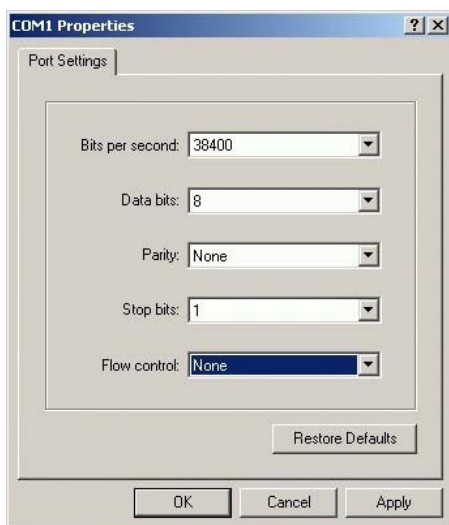


1. Input a name for this connection, such as NuTAP-S61, and also select an icon for this connection. Click "OK" to continue.

Establishing Connection with NuTAP-S61



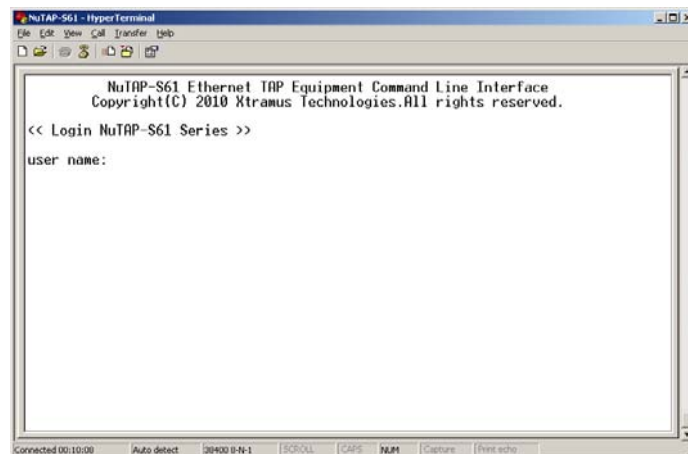
2. Select the COM port of PC for this connection. Click “OK” to continue.



3. Set the COM port parameters according to the settings listed down below:

- **Bits per second:** 38400
- **Data bits:** 8
- **Parity:** None
- **Stop bits:** 1
- **Flow control:** None

Click “OK” to continue.

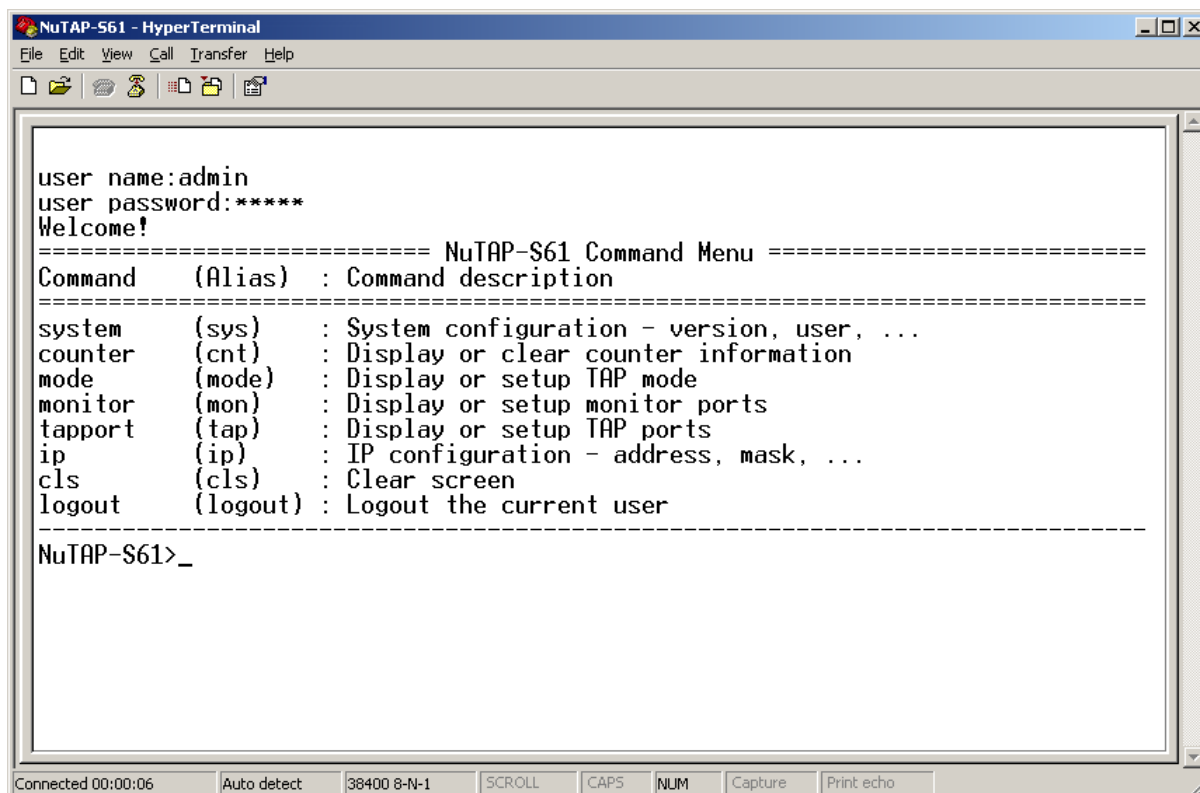


Click the “Enter” key on your keyboard to start setting NuTAP-S61 via HyperTerminal. To log in, please type NuTAP-S61’s user name and password:

- **Default User Name:** admin
- **Default Password:** admin (Both the User Name and Password are case-sensitive.)

If you change NuTAP-S61’s user name and password with NuTAP-S61’s configuration webpage, please log in with the new user name and password here.

3.3.2. NuTAP-S61 HyperTerminal Commands

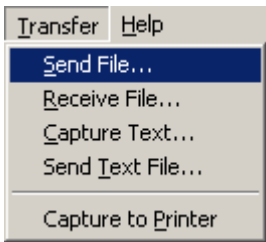


After logging in NuTAP-S61 via HyperTerminal, a **NuTAP-S61 Command Menu** will be displayed, showing NuTAP-S61's HyperTerminal commands. Please see the table down below for brief descriptions of NuTAP-S61 commands:

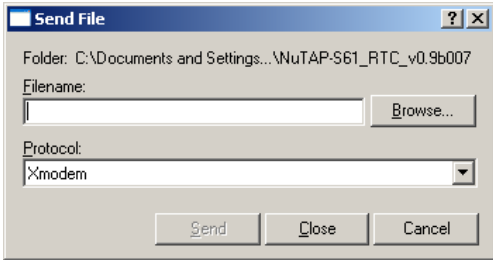
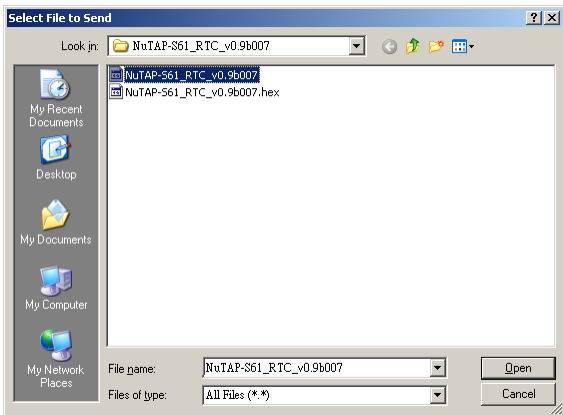
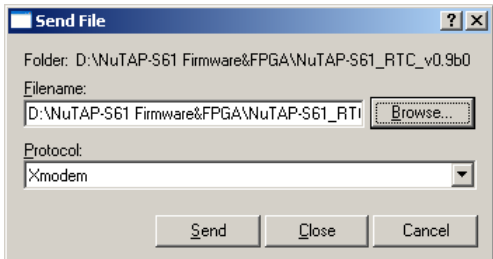
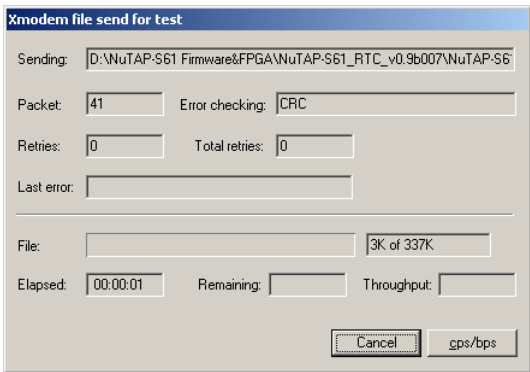
Command	Alias	Command Description
system	sys	The system command allows you to view NuTAP-S61's system information, make system configurations, and upgrade NuTAP-S61's firmware/FPGA.
counter	cnt	The counter command allows you to view NuTAP-S61's counter information and set USC (Universal Stream Counter).
mode	mode	The mode command allows you to view NuTAP-S61's current running mode or change NuTAP-S61's running mode (aggregate/segregate/multi-mirror).
monitor	mon	The monitor command allows you to view NuTAP-S61's Monitor Port (M0/M1) status or configure Monitor Port's settings.
tapport	tap	The tapport command allows you to view NuTAP-S61's Network Port (A0/A1) status or configure Network Port's settings.
ip	ip	The ip command allows you to view NuTAP-S61's current IP settings or configure these settings.
cls	cls	The cls command allows you to clear HyperTerminal screen.
logout	logout	The logout command allows you to log out. For security issues, it is recommended that you should log out if you're not using the HyperTerminal anymore.

Please see the sections down below for detailed information about each command.

A. NuTAP-S61 HyperTerminal Command – system

Command Descriptions – system			
system	show	The system show allows you to view NuTAP-S61's PCB/firmware/FPGA versions, as well as hardware temperature.	
	user	show	The system user show command allows you to view the current users and their passwords.
		admin	The system user admin [name password] <name password> command allows you to change the user name and its password of the user with administrator privilege. For example, if you type in system user admin name test123 and press enter, a user named test123 with administrator privilege will be created.
		guest	The system user guest [name password] <name password> command allows you to change the user name and its password of the user with guest privilege. For example, if you type in system user guest name test123 and press enter, a user named test123 with guest privilege will be created.
	devname	show	The system devname show command allows you to view the device name assigned to NuTAP-S61.
		set	The system devname set [device name] command allows you to view the device name assigned to NuTAP-S61.
	snmp	show	The system snmp show command will show the current SNMP (Simple Network Management Protocol) settings.
		writcommunity	The system snmp writcommunity <parameter> allows you to set the community with write privilege. The <parameter> can be public , private , or user names .
		readcommunity	The system snmp readcommunity <parameter> allows you to set the community with read privilege. The <parameter> can be public , private , or user names .
	save	The system save command allows you to save the current settings to NuTAP-S61's NV-RAM. Please note that all unsaved settings will be lost after system reboot.	
	update	firmware/FPGA	<p>The system update [firmware/FPGA] commands allow you to upgrade NuTAP-S61's firmware/FPGA. The following descriptions are for upgrading NuTAP-S61's firmware. However, procedures for upgrading NuTAP-S61's FPGA are quite the same and can be related.</p> <ol style="list-style-type: none"> 1. Type in "system update firmware" and click enter. Press Y to proceed and start upgrading firmware, or press N to cancel. <pre>NuTAP-S61>system update firmware Do you want to update firmware? Y/N_</pre> <ol style="list-style-type: none"> 2. Press Transfer on HyperTerminal's menu bar and choose "Send File". 

Command Descriptions – system

system (Contd.)	update (Contd.)	firmware/FPGA (Contd.)	<p>3. A Send File window will pop up. Please set the Protocol to Xmodem, and click the Browse button.</p>  <p>4. Choose the firmware you would like to upgrade to and click Open.</p>  <p>5. Click the Send button to start sending firmware.</p>  <p>6. System is sending firmware to NuTAP-S61.</p>  <p>7. NuTAP-S61 will reboot when finishing upgrading its firmware.</p>
	reset	The system reset command allows you to reset all NuTAP-S61's settings back to the default values.	
	reboot	The system reboot command allows you to reboot NuTAP-S61. Please note that all unsaved settings will be lost after rebooting.	

B. NuTAP-S61 HyperTerminal Command – counter

Command Descriptions – counter			
counter	show	The counter show command allows you to view all NuTAP-S61's counter report, as well as hardware temperature. You can also add additional commands behind the counter show command as listed down below:	
		usc	The counter show usc [a0 a1] [group=0 group=1] command allows you to view NuTAP-S61's USC (Universal Stream Counter) report of its Network Port (A0/A1) and the USC group. For example, to view the USC in USC group 0 for Network Port A0, please input the command " counter show usc a0 group=0 ".
		configure	The counter show configure command allows you to view USC's settings.
	clear	The counter clear command allows you to clear all counters.	
	refreshtime	show	The refreshtime show command allows you to view the refresh time for the report.
		set	The refreshtime set command allows you to set the refresh time (in seconds) for the report.
	setusc	The counter setusc command allows you to configure NuTAP-S61's USC (Universal Stream Counter) settings. Please refer to the sections down below for detailed descriptions. Also, to view command lists for USC settings, you can input " counter help setusc ".	
		baseaddress	The counter setusc [a0 a1] [group=0 group=1] baseaddress [da sa vid mpls dip sip dp sp vlancos vid&vlancos] <value> command allows you to change the specific base address for NuTAP-S61's certain Network Port (A0/A1) and the USC group. Please refer to the table down below for command initial reference:
			<ul style="list-style-type: none"> • DA: Destination Address • SA: Source Address • VID: VLAN ID • MPLS: Multi-Protocol Label Switch • DIP: Destination IP Address • SIP: Source IP Address • DP: Destination Port • SP: Source Port • VLANCOS: VLAN Class of Service • VID&VLANCOS: VLAN ID and VLAN Class of Service
			For example, to set the USC in source IP address of USC group 0 for Network Port A0 to 192.168.1.1, please input the command " counter setusc a0 group=0 baseaddress sip 192.168.001.001 ".
		mode	The setusc [a0 a1] [group=0 group=1] mode [normal jitter] command allows to change the mode for NuTAP-S61's certain Network Port (A0/A1) and the USC group. There are two modes available here:
			<ul style="list-style-type: none"> • Normal: The USC will run under normal mode. • Jitter: The USC will run under jitter mode.
		For example, to set the mode of USC group 0 for Network Port A0 to normal, please input the command " counter setusc a0 group=0 mode normal ".	
		enable/disable	The setusc [a0 a1] [group=0 group=1] [enable disable] command allows you to enable/disable NuTAP-S61's certain Network Port (A0/A1) and the USC group. For example, to enable USC group 0 for Network Port A0, please input the command " counter setusc a0 group=0 enable ".

C. NuTAP-S61 HyperTerminal Command – mode

Command Descriptions – mode		
mode	show	The mode show command allows you to view NuTAP-S61's redirect mode (aggregation , segregation , or multi-mirror) settings.
	set	The mode set [aggregation segregation multimirror] <m0 m1> command allows you to set NuTAP-S61's redirect mode for Monitor Port M0/M1 . For example, to set NuTAP-S61 Monitor Port M0 to aggregation redirect mode, please input the command " mode set aggregation m0 ".

D. NuTAP-S61 HyperTerminal Command – monitor

Command Descriptions – monitor		
monitor	show	The monitor show command allows you to view header and media type for all NuTAP-S61's ports (Network Port A0/A1 and Monitor Port M0/M1).
	header	The monitor [m0 m1 port=all] header [da sa id dip sip dport sport mtu] <Parameter> command allows you to configure NuTAP-S61's Monitor Ports M0/M1 . The configuration options available includes:
		<ul style="list-style-type: none"> • DA: Destination Address • SA: Source Address • ID: ID • DIP: Destination IP Address • SIP: Source IP Address • DPORT: Destination Port • SPORT: Source Port • MTU: Maximum Transmission Unit
		For example, to set NuTAP-S61 Monitor Port M0's destination port to port 9, please input the command " monitor m0 header dport 0009 ". The formats for each available configuration option are listed down below:
		<ul style="list-style-type: none"> • DA/SA: XX-XX-XX-XX-XX-XX • ID: XXXX • DIP/SIP: XXX.XXX.XXX.XXX • DPORT/SPORT: XXXX
		The monitor [m0 m1 port=all] header mode command allows you to set the combinations of headers that will be added to packets to/from designated Monitor Port (MAC , ID , Timestamp , IP , Port , Fragment). For example, to add the header with ID and IP to packets to/from Monitor Port M0, please input the command " monitor m0 header mode id+ip ".
	reset	The monitor [m0 m1 port=all] header reset command allows you to reset all settings made to the specific Monitor Port. For example, to reset all settings done for Monitor Port M0, please input the command " monitor m0 header reset ".

E. NuTAP-S61 HyperTerminal Command – tapport

Command Descriptions – tapport		
tapport	show	The tapport show command allows you to view information regarding to NuTAP-S61 Network Ports ’ media types and Forwarding Filter/Re-direct Filter/Capture Criteria settings.
	set	The tapport set mediatype [nway 10f 100f] allows you to set NuTAP-S61 Network Ports’ media type.
		<ul style="list-style-type: none"> • Nway: Auto-Negotiation • 10F: 10 Mbps Full • 100F: 100 Mbps Full For example, to set NuTAP-S61 Network Ports to auto-negotiation mode, please input the command “ tapport set mediatype nway ”.
	Setting Forwarding Filter (fwf)	
	The tapport a0toa1 fwf [Command] <Parameter> command allows you to set the criteria for Forwarding Filter from Network Port A0 to A1 . If you would like to set Forwarding Filter from Network Port A1 to A0 , please use the a1toa0 sub command instead. The following sections will use a0toa1 as example.	
	fwf Command	The tapport a0toa1 fwf type [all pattern qinq vlan rtp ftp udp tcp arp icmp ipv6 ipcserror ipv4 crcerror uc mc bc sdfr] command allows you to set the packet criteria for Forwarding Filter from Network Port A0 to A1. The criteria available here includes: <ul style="list-style-type: none"> • all: Select all • pattern: Pattern Check • qinq: QinQ (Double VLAN TAG) • vlan: VLAN • rtp: RTP Protocol • ftp: FTP Protocol • udp: UDP Protocol • tcp: TCP Protocol • arp: ARP • icmp: ICMP • ipv6: IPv6 • ipcserror: IPCS Error • ipv4: IPv4 • crcerror: CRC Error • uc: Uni-cast • mc: Multi-cast • bc: Broadcast • sdf: Self-Discover Filtering Rules For example, to add UDP, RTP, and ICMP filter from Network Port A0 to A1, please input the command “ tapport a0toa1 fwf type udp+rtp+icmp ”.
		SDFR stands for Self-Discover Filtering Rules. The tapport a0toa1 fwf sdfr [da-a da-b da-s sa-a sa-b sa-s dip-a dip-b dip-s sip-a sip-b sip-s] <Parameter> allows you to set the SDFR for Forwarding Filter from Network Port A0 to A1. The criteria available here includes: <ul style="list-style-type: none"> • da-a: Destination Address A • da-b: Destination Address B • da-s: Destination Address Single • sa-a: Source Address A • sa-b: Source Address B • sa-s: Source Address Single • dip-a: Destination IP Address A • dip-b: Destination IP Address B • dip-s: Destination IP Address Single • sip-a: Source IP Address A • sip-b: Source IP Address B • sip-s: Source IP Address Single The <Parameter> should follow the format listed in the table down below: <ul style="list-style-type: none"> • DA/SA: XX-XX-XX-XX-XX-XX • DIP/SIP: XXX.XXX.XXX.XXX For example, to set SDFR for filtering packets with the destination IP address of 192.168.1.1 from Network Port A0 to A1, please input the command “ tapport a0toa1 fwf sdfr dip-s 192.168.001.100 ”.
		sdf Sub Commands
		mode The tapport a0toa1 fwf sdfr mode [da sa dip sip] [range pair single] command allows you to set the SDFR rule settings. You can set SDFR for filtering DA/SA/DIP/SIP in range, pair, or for single one.
		trig The tapport a0toa1 fwf sdfr trig [mac&ip ip sa&dip sa&sip da&dip da&sip mac dip sip sa da] command allows you to set the criteria to trigger (trig) SDFR.
	reset	The tapport a0toa1 fwf reset command allows you to reset all Forwarding Filter settings for packets flow from Network Port A0 to A1.

Command Descriptions – tapport

Setting Capture Criteria (cap)						
tapport (Contd.)	The tapport a0toa1 cap [Command] [Parameter] allows you to set the criteria for Capture Criteria for packets flow from Network Port A0 to A1 . If you would like to set Capture Criteria for packets flow from Network Port A1 to A0 , please use the a1toa0 sub command instead. The following sections will use a0toa1 as example. Please see the sections down below for detailed descriptions regarding to the commands and parameter available here:					
	cap Command	<p>The tapport a0toa1 cap type [all pattern qinq vlan rtp ftp udp tcp arp icmp ipv6 ipcserror ipv4 crcerror uc mc bc sdfr] command allows you to set the packet criteria for Capture Criteria from Network Port A0 to A1. The criteria available here includes:</p> <table><tr><td><ul style="list-style-type: none">• all: Select all• pattern: Pattern Check• qinq: QinQ (Double VLAN TAG)• vlan: VLAN• rtp: RTP Protocol• ftp: FTP Protocol</td><td><ul style="list-style-type: none">• all: Select all• pattern: Pattern Check• qinq: QinQ (Double VLAN TAG)• vlan: VLAN• rtp: RTP Protocol• ftp: FTP Protocol</td><td><ul style="list-style-type: none">• all: Select all• pattern: Pattern Check• qinq: QinQ (Double VLAN TAG)• vlan: VLAN• rtp: RTP Protocol• ftp: FTP Protocol</td></tr></table>	<ul style="list-style-type: none">• all: Select all• pattern: Pattern Check• qinq: QinQ (Double VLAN TAG)• vlan: VLAN• rtp: RTP Protocol• ftp: FTP Protocol	<ul style="list-style-type: none">• all: Select all• pattern: Pattern Check• qinq: QinQ (Double VLAN TAG)• vlan: VLAN• rtp: RTP Protocol• ftp: FTP Protocol	<ul style="list-style-type: none">• all: Select all• pattern: Pattern Check• qinq: QinQ (Double VLAN TAG)• vlan: VLAN• rtp: RTP Protocol• ftp: FTP Protocol	
		<ul style="list-style-type: none">• all: Select all• pattern: Pattern Check• qinq: QinQ (Double VLAN TAG)• vlan: VLAN• rtp: RTP Protocol• ftp: FTP Protocol	<ul style="list-style-type: none">• all: Select all• pattern: Pattern Check• qinq: QinQ (Double VLAN TAG)• vlan: VLAN• rtp: RTP Protocol• ftp: FTP Protocol	<ul style="list-style-type: none">• all: Select all• pattern: Pattern Check• qinq: QinQ (Double VLAN TAG)• vlan: VLAN• rtp: RTP Protocol• ftp: FTP Protocol		
		For example, to add UDP, RTP, and ICMP as Capture Criteria for packets flow from Network Port A0 to A1, please input the command “ tapport a0toa1 cap type udp+rtp+icmp ”.				
	cap Command	sdf	<p>SDFR stands for Self-Discover Filtering Rules. The tapport a0toa1 capsdfr [da-a da-b da-s sa-a sa-b sa-s dip-a dip-b dip-s sip-a sip-b sip-s] <Parameter> allows you to set the SDFR for Capture Criteria from Network Port A0 to A1. The criteria available here includes:</p> <table><tr><td><ul style="list-style-type: none">• da-a: Destination Address A• da-b: Destination Address B• da-s: Destination Address Single• sa-a: Source Address A• sa-b: Source Address B• sa-s: Source Address Single</td><td><ul style="list-style-type: none">• da-a: Destination Address A• da-b: Destination Address B• da-s: Destination Address Single• sa-a: Source Address A• sa-b: Source Address B• sa-s: Source Address Single</td></tr></table>	<ul style="list-style-type: none">• da-a: Destination Address A• da-b: Destination Address B• da-s: Destination Address Single• sa-a: Source Address A• sa-b: Source Address B• sa-s: Source Address Single	<ul style="list-style-type: none">• da-a: Destination Address A• da-b: Destination Address B• da-s: Destination Address Single• sa-a: Source Address A• sa-b: Source Address B• sa-s: Source Address Single	
			<ul style="list-style-type: none">• da-a: Destination Address A• da-b: Destination Address B• da-s: Destination Address Single• sa-a: Source Address A• sa-b: Source Address B• sa-s: Source Address Single	<ul style="list-style-type: none">• da-a: Destination Address A• da-b: Destination Address B• da-s: Destination Address Single• sa-a: Source Address A• sa-b: Source Address B• sa-s: Source Address Single		
			The <Parameter> should follow the format listed in the table down below:			
			<table><tr><td>• DA/SA: XX-XX-XX-XX-XX-XX</td><td>• DA/SA: XX-XX-XX-XX-XX-XX</td></tr></table>		• DA/SA : XX-XX-XX-XX-XX-XX	• DA/SA : XX-XX-XX-XX-XX-XX
			• DA/SA : XX-XX-XX-XX-XX-XX	• DA/SA : XX-XX-XX-XX-XX-XX		
	For example, to set SDFR for capturing packets with the destination IP address of 192.168.1.1 from Network Port A0 to A1, please input the command “ tapport a0toa1 cap sdfr dip-s 192.168.001.100 ”.					
sdf Sub Commands						
	mode	The tapport a0toa1 cap sdf mode [da sa dip sip] [range pair single] command allows you to set the SDFR rule settings. You can set SDFR for capturing DA/SA/DIP/SIP in range, pair, or for single one.				
	trig	The tapport a0toa1 cap sdf trig [mac&ip ip sa&dip sa&sip da&dip da&sip mac dip sip sa da] command allows you to set the criteria to trigger (trig) SDFR.				
	reset	The tapport a0toa1 cap reset command allows you to reset all Capture Criteria settings for packets flow from Network Port A0 to A1.				
	show	The tapport a0toa1 cap show command allows you to view all the packets captured by NuTAP-S61. Press “ S ” on your keyboard to start/stop display, and press “ ESC ” on your keyboard to quit.				

Command Descriptions – tapport

tapport (Contd.)	Setting Re-direct Filter (red)		
	The tapport a0toa1 red [Command] [Parameter] allows you to set the criteria for Re-direct Filter from Network Port A0 to A1 . If you would like to set Re-direct Filter from Network Port A1 to A0 , please use the a1toa0 sub command instead. The following sections will use a0toa1 as example.		
	session		NuTAP-S61 supports two filter sessions with each session has two IPs, they are all labeled as ID 0/1 and IP 0/1 .
			tapport a0toa1 red session [id=0 id=1] [ip=0 ip=1] <Parameter>
			This command will set the Session 0 or Session 1's (id=0 or id=1) IP 0 or IP 1 (ip=0 or ip=1) to a specific IP address (ex. 192.168.1.1).
	type		tapport a0toa1 red session [id=0 id=1] [mode] enable disable]
			This command will set (mode)/enable/disable Session 0 or Session 1's (id=0 or id=1) mode with sub commands ds (IP 0 as DIP, IP1 as SIP), sd (IP 0 as SIP, IP1 as DIP), and dsorsd (IP 0/1 serve as both DIP and SIP).
			The tapport a0toa1 red type [all pattern qinq vlan rtp ftp udp tcp arp icmp ipv6 ipcserror ipv4 crcerror uc mc bc sdfr] command allows you to set the Re-direct Filter for packets flow from Network Port A0 to A1. The criteria available here includes:
	sdf		<ul style="list-style-type: none"> all: Select all pattern: Pattern Check qinq: QinQ (Double VLAN TAG) vlan: VLAN rtp: RTP Protocol ftp: FTP Protocol
			<ul style="list-style-type: none"> all: Select all pattern: Pattern Check qinq: QinQ (Double VLAN TAG) vlan: VLAN rtp: RTP Protocol ftp: FTP Protocol
			<ul style="list-style-type: none"> all: Select all pattern: Pattern Check qinq: QinQ (Double VLAN TAG) vlan: VLAN rtp: RTP Protocol ftp: FTP Protocol
tapport (Contd.)	red Command		For example, to add UDP, RTP, and ICMP as Re-direct Filter for packets flow from Network Port A0 to A1, please input the command " tapport a0toa1 red type udp+rtp+icmp ".
			SDFR stands for Self-Discover Filtering Rules. The tapport a0toa1 red sdfr [da-a da-b da-s sa-a sa-b sa-s dip-a dip-b dip-s sip-a sip-b sip-s] <Parameter> allows you to set the SDFR for Re-direct Filter packets flow from Network Port A0 to A1. The criteria available here includes:
			<ul style="list-style-type: none"> da-a: Destination Address A da-b: Destination Address B da-s: Destination Address Single sa-a: Source Address A sa-b: Source Address B sa-s: Source Address Single
			<ul style="list-style-type: none"> da-a: Destination Address A da-b: Destination Address B da-s: Destination Address Single sa-a: Source Address A sa-b: Source Address B sa-s: Source Address Single
			<ul style="list-style-type: none"> da-a: Destination Address A da-b: Destination Address B da-s: Destination Address Single sa-a: Source Address A sa-b: Source Address B sa-s: Source Address Single
			The <Parameter> should follow the format listed in the table down below:
			<ul style="list-style-type: none"> DA/SA: XX-XX-XX-XX-XX-XX DA/SA: XX-XX-XX-XX-XX-XX
			For example, to set SDFR for re-directing packets with the destination IP address of 192.168.1.1 from Network Port A0 to A1, please input the command " tapport a0toa1 red sdfr dip-s 192.168.001.100 ".
			sdf Sub Commands
		mode	The tapport a0toa1 red sdfr mode [da sa dip sip] [range pair single] command allows you to set the SDFR rule settings. You can set SDFR for re-directing DA/SA/DIP/SIP in range, pair, or for single one.
		trig	The tapport a0toa1 red sdfr trig [mac&vid&ip&port mac&ip&port mac&ip vid&ip&port ip&port ip&dp ip&sp dip&dp dip&sp sip&dp sip&sp ip sa&dip sa&sip da&dip da&sip mac&vid mac session1 session0 dp sp dip sip vid sa da] command allows you to set the criteria to trigger (trig) SDFR.
		reset	The tapport a0toa1 red reset command allows you to reset all Re-direct Filter settings for packets flow from Network Port A0 to A1.

Command Descriptions – tapport

tapport (Contd.)	rate		The tapport a0toa1 rate [value enable disable] <Parameter> command allows you to set/enable/disable the transmitting rate (Rate Control).
		value	The tapport a0toa1 rate value <Parameter> command allows you to set the flow rate (bps) from Network Port A0 to A1.
		enable	The tapport a0toa1 rate enable command will enable the Rate Control.
		disable	The tapport a0toa1 rate disable command will disable the Rate Control.
	pattern		NuTAP-S61 supports two sets of Pattern Check (group=1 and group=2). The tapport a0toa1 pattern [group=0 group=1] [value mask enable disable] <Parameter> command allows you to make settings for the Pattern Check .
		value	The value sub command allows you to set the pattern value (DATA) for Pattern check. For example, to set the pattern value 00 00 00 00 00 00 00 00 for the Pattern Check Group 1 for packets flow from Network Port A0 to A1, please input the command “ tapport a0toa1 pattern group=1 value 0000000000000000 ”.
		mask	The mask sub command allows you to set the pattern mask (Byte Enable) for Pattern Check. For example, to set the 3 rd byte of the pattern value enabled for the Pattern Check Group 1 for packets flow from Network Port A0 to A1, please input the command “ tapport a0toa1 pattern group=1 mask 00100000 ”. Please note that the Parameter here should be 8-bit, while 0 represents disable , and 1 represents enable .
		enable	For example, to enable the Pattern Check Group 1 for packets flow from Network Port A0 to A1, please input the command “ tapport a0toa1 pattern group=1 pattern enable ”.
		disable	For example, to disable the Pattern Check Group 1 for packets flow from Network Port A0 to A1, please input the command “ tapport a0toa1 pattern group=1 pattern disable ”.
	flowctrl		The tapport a0toa1 flowctrl [enable disable] command allows you to enable or disable Flow Control (flowctrl)

E. NuTAP-S61 HyperTerminal Command – ip

Command Descriptions – ip			
ip	show	The ip show command allows you to view information of NuTAP-S61's IP configuration.	
	status	The ip status command allows you to view information of NuTAP-S61's IP status.	
	mode	dhcp	The ip mode dhcp command allows you to set NuTAP-S61's IP acquiring mode to DHCP, allowing NuTAP-S61 to acquire IP automatically from DHCP server.
		static	The ip mode static command allows you to set NuTAP-S61's IP acquiring mode to Static, allowing you to set IP/Subnet Mask/Gateway IP manually.
	address	The ip address <IP Address> command allows you to set NuTAP-S61's IP address. For example, to set NuTAP-S61's IP address to 192.168.1.20, please input the command " ip address 192.168.1.20 ".	
	mask	The ip mask <Subnet Mask Address> command allows you to set NuTAP-S61's subnet mask address. For example, to set NuTAP-S61's subnet mask address to 255.255.255.0, please input the command " ip mask 255.255.255.0 ".	
	gateway	The ip gateway <Gateway Address> command allows you to set NuTAP-S61's gateway address. For example, to set NuTAP-S61's subnet gateway address to 192.168.1.254, please input the command " ip gateway 192.168.1.254 ".	

F. NuTAP-S61 HyperTerminal Command – cls

Command Descriptions – cls	
cls	The cls command allows you to clear HyperTerminal screen.

G. NuTAP-S61 HyperTerminal Command – logout

Command Descriptions – logout	
logout	The logout command allows you to log out of NuTAP-S61's HyperTerminal configuration session.



NuSet-MiniTAP User's Manual

Foreword

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Revision History

Date	Version	History
2010/09/26	1.0	First draft version
2010/12/13	1.1	<ol style="list-style-type: none">1. Page 43, change NuTAP-S61 installation figures and related descriptions.2. Page 53, changing title/descriptions regarding to Monitor Port M0/M1.3. Page 56, change descriptions regarding to Filter All Packets.4. Page 57/60, correct typos regarding to Rule Setting.5. Page 63, change descriptions regarding to Re-direct All Packets.6. Page 64, change descriptions regarding to VLAN ID.7. Page 69, change descriptions regarding to Line Mode.8. Page 69, change column title to Report Control Buttons Descriptions.9. Page 70, change descriptions regarding to Bar Mode.10. Page 71, change column title to Accessing Universal Stream Counter (USC) Report.

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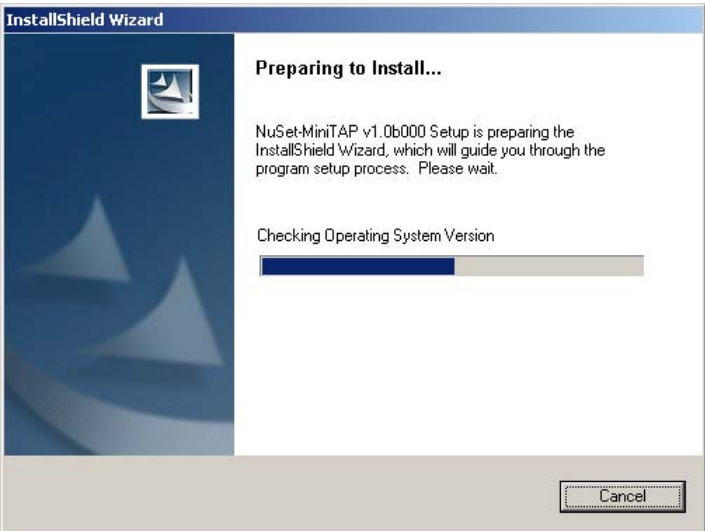
1. Installing/Uninstalling NuSet-MiniTAP

NuSet-MiniTAP is a GUI (graphic user interface) utility software for setting test criteria and system management. NuSet-MiniTAP supports **NuTAP-S61** and **NuTAP-311**. When **NuTAP-S61/NuTAP-311** is connected with PC via its RJ45-to-USB cable, you can set test criteria, save/view testing results, and upgrade firmware/FPGA with NuSet-MiniTAP.

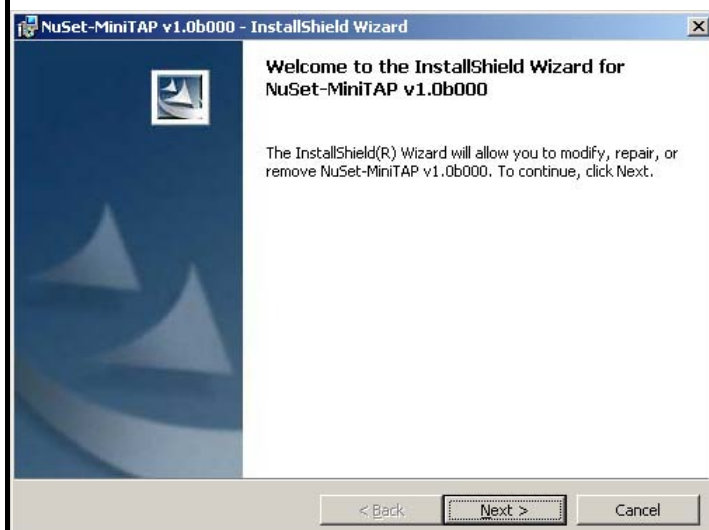
However, before using NuSet-MiniTAP's features and functions, you have to install it on your PC first.

Both NuTAP-S61 and NuTAP-311's drivers are contained in NuSet-MiniTAP. The required drivers and NuSet-MiniTAP will be installed at the same time. Please note that DO NOT connect your NuTAP-S61/NuTAP-311 to the PC before the installation.

Please follow the steps down below to install NuSet-MiniTAP.

NuSet-MiniTAP Installation	
	1. Double-click NuSet-MiniTAP installation program and start the installation process.
	2. InstallShield Wizard is starting to install NuSet-MiniTAP. If you would like to cancel installation, click " Cancel ".

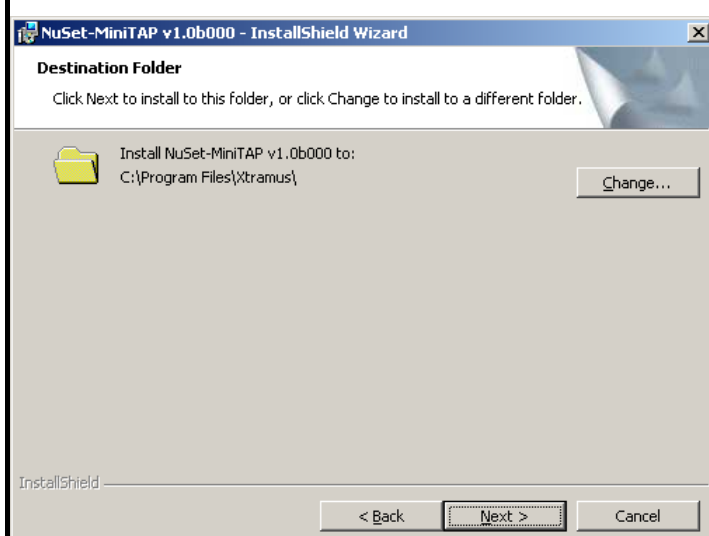
NuSet-MiniTAP Installation



3. Click **"Next"** to continue installation.

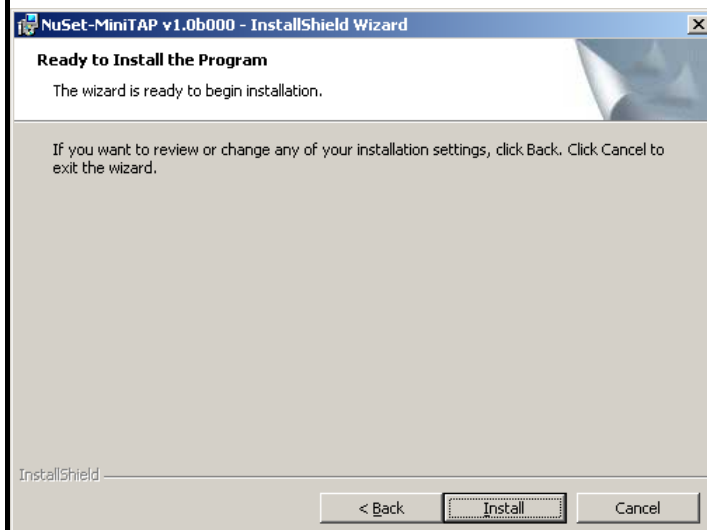


4. Click **"I accept the terms in the license agreement"**, and click **"Next"** to continue.

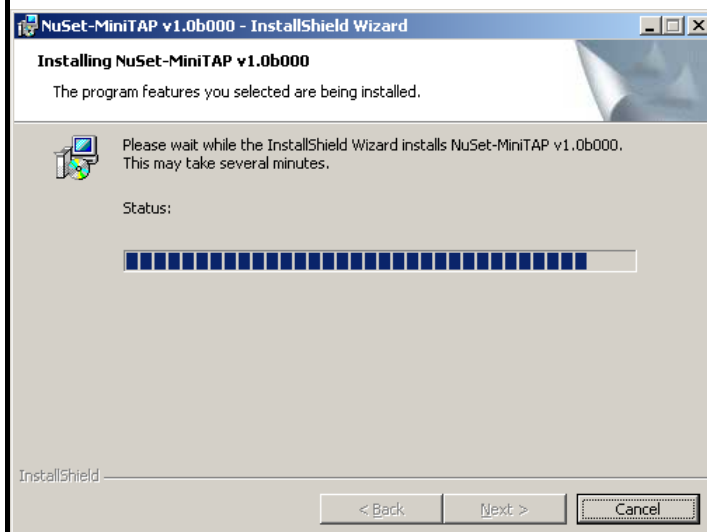


5. Click the **Change...** button to install the program to another folder, or click **Next** button to install the program into the default destination folder, and then continue next step. Click **Back** button to go back to the previous step to modify.

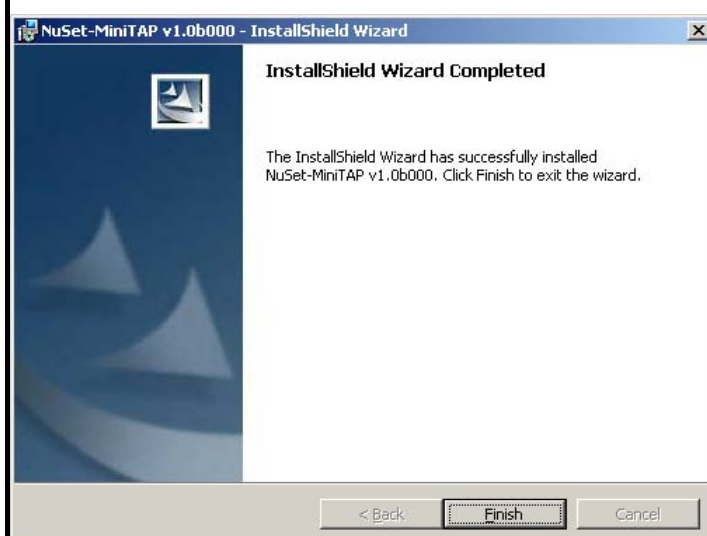
NuSet-MiniTAP Installation



6. NuSet-MiniTAP InstallShield Wizard will start installing momentarily. Click **Install** button if the information is correct.



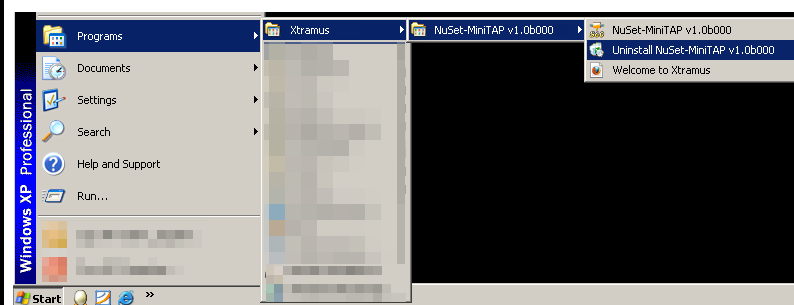
7. InstallShield Wizard is installing NuSet-MiniTAP.



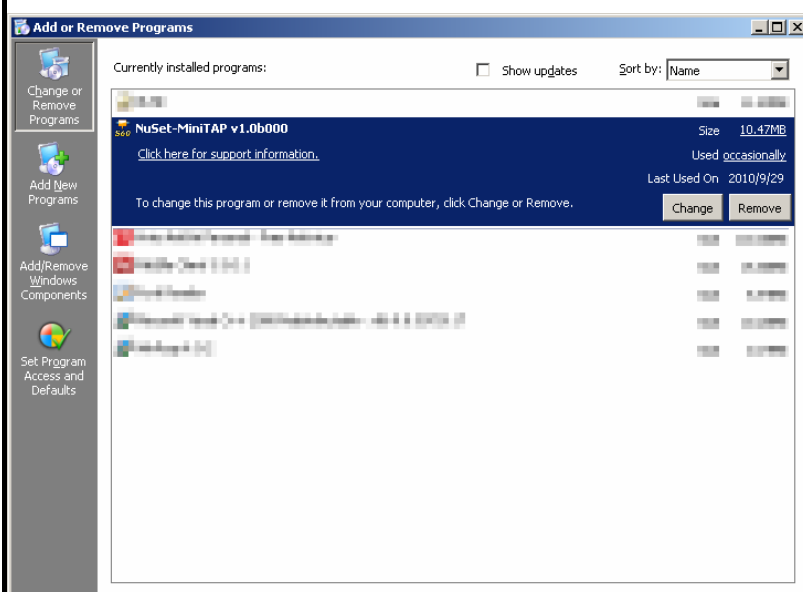
8. NuSet-MiniTAP installation completes. Click **Finish** button to exit.

To uninstall NuSet-MiniTAP, you can:

NuSet-MiniTAP Un-installation



- Click **Start** → **Programs** → **Xtramus** → **NuSet-MiniTAP** → **Uninstall NuSet-MiniTAP**.

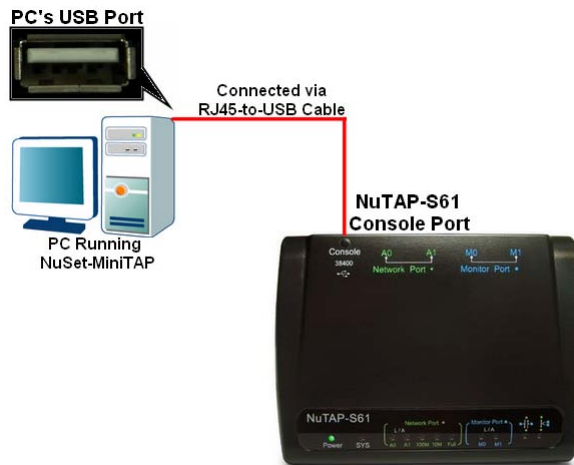


- Go to the **Control Panel**, choose **NuSet-MiniTAP** from installed program list, and click "**Remove**" to uninstall.

2. NuSet-MiniTAP Overview

2.1. Starting NuSet-MiniTAP

Before starting NuSet-MiniTAP, please be sure that your NuTAP-S61 or NuTAP-311 is properly connected to your PC. The figure down below is an example for connecting NuTAP-S61 to PC via an RJ45-to-USB cable.

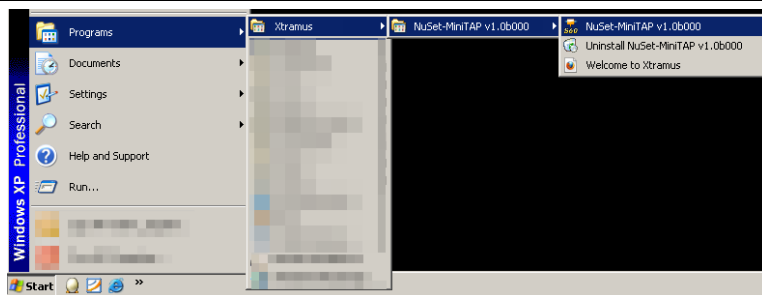


You can start NuSet-MiniTAP by:

Starting NuSet-MiniTAP

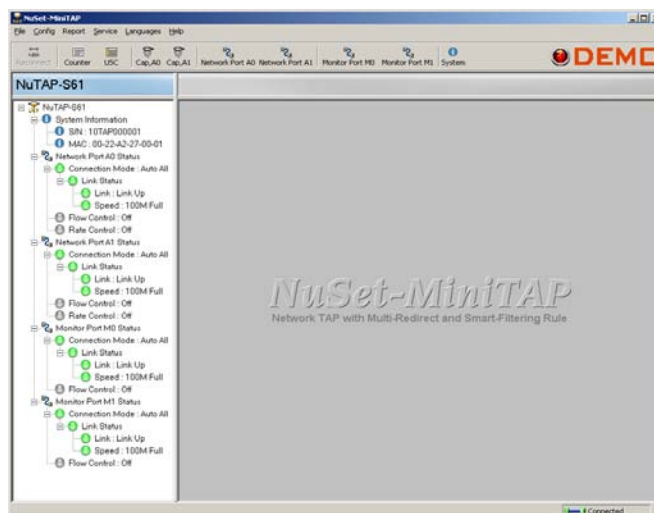


- Double-click NuSet-MiniTAP icon located on your PC's desktop

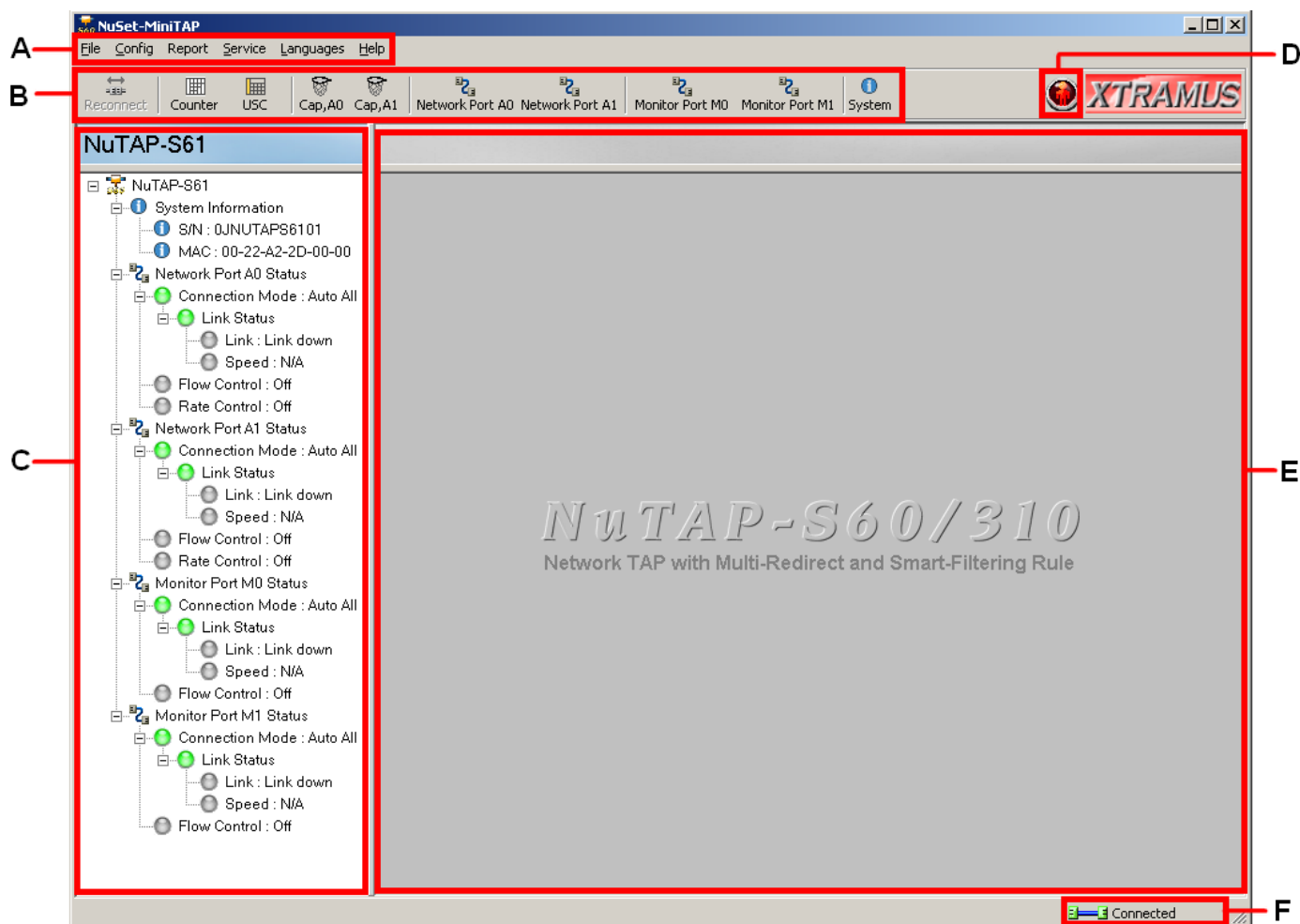


- Click **Start** → **Programs** → **Xtramus** → **NuSet-MiniTAP** → **NuSet-MiniTAP**.

If your PC is not connected with NuTAP-S61 /NuTAP-311, you can still run NuSet-MiniTAP under **Demo Mode**. Almost all NuSet-MiniTAP's functions are available under **Demo Mode**. However, please note that **Demo Mode is for system demo purposes only**, and does not serve any testing purposes at all.



2.2. NuSet-MiniTAP Main Window Overview



NuTAP-S60_310 Utility Functions Overview		
A	Menu Bar	The Menu Bar allows you to make settings about test criteria, view/save test log, change language displayed, and update firmware /FPGA.
B	Quick Launch Buttons	The Quick Launch Buttons allow you to reconnect your PC to NuTAP-S60_310 Utility, open/save test logs, and switching Main Display Screen display mode.
C	System Status Overview	Status of Network Port A0/A1, Monitor Port M0/M1, and NuTAP-S61/NuTAP-311 system overview.
D	Test Running Status Icon	This icon shows the test running status of NuSet-MiniTAP.
E	Main Display Screen	You can make detail configurations and view real-time testing diagrams on the Main Display Screen .
F	USB Connection Status	This icon shows the connection status between your PC and NuTAP-S61/NuTAP-311.

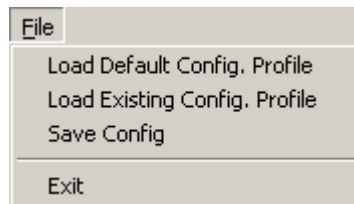
3. NuSet-MiniTAP Functions

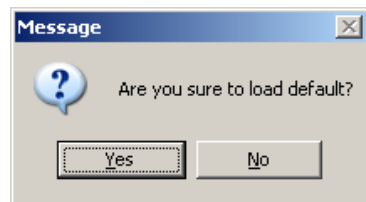
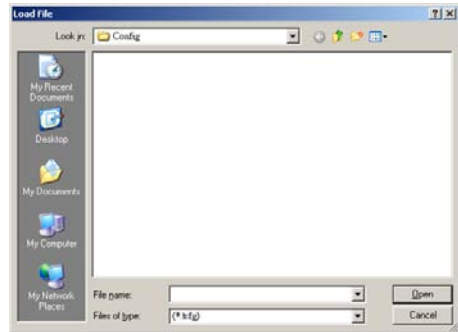
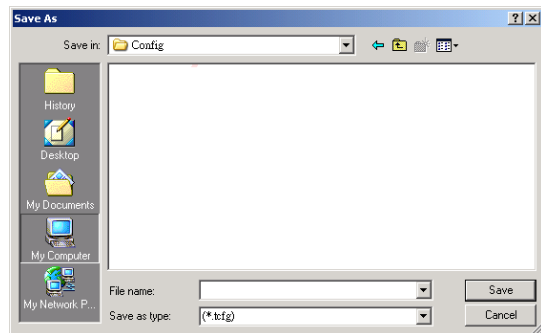
3.1. Menu Bar

File Config Report Service Languages Help

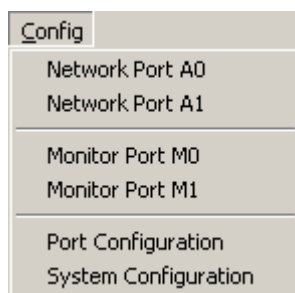
NuSet-MiniTAP's **Menu Bar** contains configuration options such as **File**, **Config**, **Report**, **Service**, **Languages**, and **Help**. Please refer to the sections down below for detail information regarding to each configuration option.

3.1.1. File



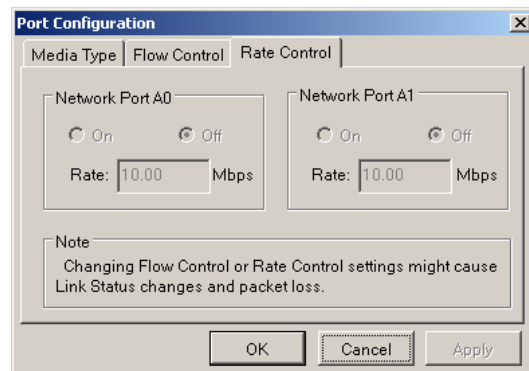
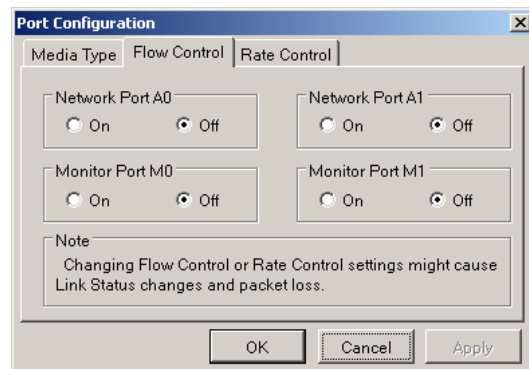
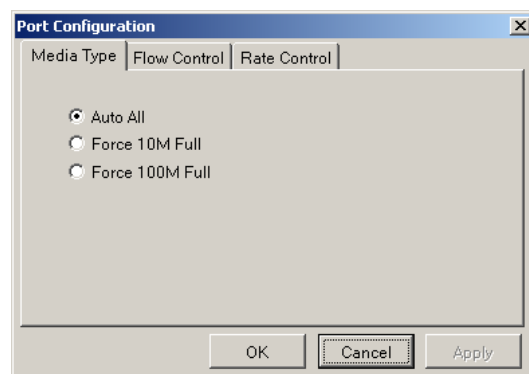
Function Descriptions – File		
Load Default Config. Profile	The Load Default Config function allows you to set all NuSet-MiniTAP's settings to default value. Click YES to load NuSet-MiniTAP's default value, or click NO to cancel.	
Load Existing Config. Profile	Load a previously-saved configuration file and applies these settings to NuSet-MiniTAP. All the configurations you've made will be saved as " *.tcfg " files.	
Save Config	Save the current configuration as a " *.tcfg " file. All saved configuration files can be loaded with Load Existing Config. Profile function located on the Menu Bar .	
Exit	A prompt pop-up window will ask if you are sure to exit NuSet-MiniTAP. Click YES to exit NuSet-MiniTAP, or click NO to cancel.	

3.1.2. Config.

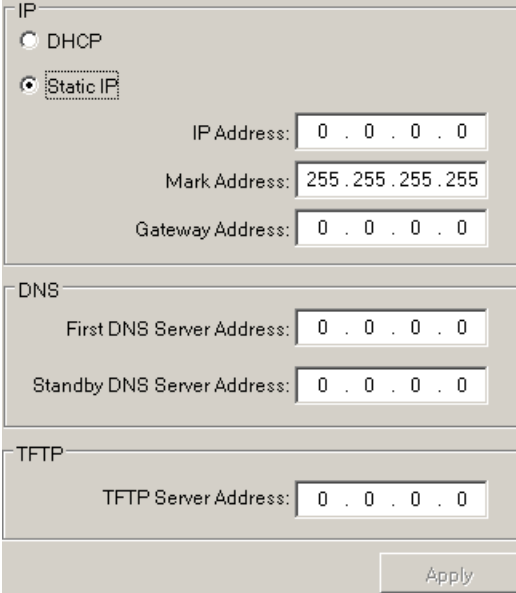


Function Descriptions – Config.

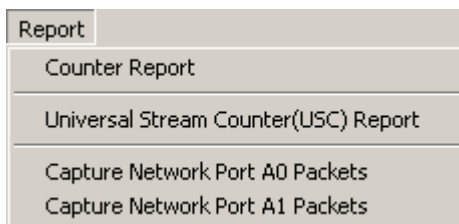
Network Port A0/A1	The Network Port A0/A1 function located on the Menu Bar allows you to make settings regarding to Network Port A0/A1 on the Main Display Screen . For more detail information, please refer to 3.5. Network Port Settings on page 21 .
Monitor Port M0/M1	The Monitor Port A0/A1 function located on the Menu Bar allows you to make settings regarding to Monitor Port A0/A1 on the Main Display Screen . For more detail information, please refer to 3.6. Monitor Port Settings on page 33 .
Port Configuration	<p>You can make settings regarding to NuTAP-S61/NuTAP-311's Network Port A0/A1 and Monitor Port M0/M1 with the Port Configuration function located on the Menu Bar.</p> <p>You can set the connection rate for Network Ports and Monitor Ports with the Media Type menu tab.</p> <ul style="list-style-type: none"> ➤ Auto All: Set all Network Ports and Monitor Ports as auto-negotiation. ➤ Force 10M Full: Set all Network Ports and Monitor Ports to 10M Full-duplex. ➤ Force 100M Full: Set all Network Ports and Monitor Ports to 100M Full-duplex. <p>When Flow Control is enabled, the transmitting rate will drop if traffic overflow occurs.</p> <ul style="list-style-type: none"> ➤ On: Enable Flow Control. ➤ Off: Disable Flow Control. <p>Please note that before making Rate Control settings, Network Port A0/A1's Flow Control function must be enabled.</p> <p>You can set the transmitting/receiving rate for Network Port A0/A1 if Flow Control is enabled.</p> <ul style="list-style-type: none"> ➤ On/Off: Enable/Disable Rate Control. ➤ Rate: When Rate Control is enabled, you can set the transmitting/receiving rate for Network Port A0/A1.



Function Descriptions – Config.

<p>System Configuration</p>	<p>You can set NuTAP-S61/NuTAP-311's IP, DNS, and TFTP here in this field. These settings will be used when connecting NuTAP-S61/NuTAP-311 to an existing network and access NuTAP-S61/NuTAP-311 via configuration web pages. Click "Apply" located on the button-right to save/apply all the changes you've made.</p>	 <p>The screenshot shows the configuration interface for NuTAP-S61/NuTAP-311. It has three main sections: IP, DNS, and TFTP. The IP section has radio buttons for DHCP and Static IP (selected). Below are input fields for IP Address (0.0.0.0), Mask Address (255.255.255.255), and Gateway Address (0.0.0.0). The DNS section has input fields for First DNS Server Address (0.0.0.0) and Standby DNS Server Address (0.0.0.0). The TFTP section has an input field for TFTP Server Address (0.0.0.0). An 'Apply' button is at the bottom right.</p>
	<p>IP</p>	
	<p>The IP section allows you to configure NuTAP-S61/NuTAP-311's IP settings.</p> <ul style="list-style-type: none"> ➤ DHCP: NuTAP-S61/NuTAP-311 will acquire IP/Subnet Mask/Gateway addresses automatically from the network DHCP server. ➤ Static IP: Set NuTAP-S61/NuTAP-311's IP/Subnet Mask/Gateway addresses manually. Please input the IP Address, Mask Address, and Gateway Address according to your network settings in the fields down below Static IP. 	
	<p>DNS</p>	
	<p>You can set the First/Secondary DNS Server Address here in the DNS field.</p>	
	<p>TFTP</p>	
	<p>TFTP stands for Trivial File Transfer Protocol. If NuTAP-S61/NuTAP-311 is connecting to a network with TFTP server, please input the TFTP Server IP address here in this field.</p>	

3.1.3. Report



Function Descriptions – Report

Counter Report	<p>The Counter Report button located on the Quick Launch Buttons allows you to view Network Ports and Monitor Ports' counter reports and charts on the Main Display Screen. You can save the test statistics here as well. For more detail information, please refer to 3.7. Counter Report on page 34.</p>
Universal Stream Counter (USC) Report	<p>Each of NuTAP-S61/NuTAP-311's Network Port supports two sets of Universal Stream Counter (USC). The Universal Stream Counter (USC) Report function located on the Menu Bar allows you to view USC statistics on the Main Display Screen. You can save the USC statistics here as well. For more detail information, please refer to 3.8. Universal Stream Counter (USC) Report on page 38.</p>
Capture Network Port A0/A1 Packets	<div data-bbox="624 831 1289 1108"> </div> <p>The Capture Network Port A0/A1 Packets function located on the Menu Bar allows you to capture packets flowing through Network Port A0/A1. NuSet-MiniTAP has two different modes available for capturing packets:</p> <p><input type="radio"/> Capture-and-Stop Mode <input checked="" type="radio"/> Real-time Mode</p> <ul style="list-style-type: none"> ➤ Capture-and-Stop Mode: NuSet-MiniTAP will capture and store packets in NuTAP-S61/NuTAP-311's memory buffer. The captured packets will be displayed when you stop packet capturing. Please note that only 8 packets will be stored to the memory buffer at the same time, and old packets stored in the memory buffer will be replaced by new captured packets. ➤ Real-time Mode: NuSet-MiniTAP will capture all packets that meet the criteria, and display them in a real-time fashion. <div data-bbox="730 1565 1185 1648"> </div> <p>You can control packet capturing with the control buttons located above.</p> <ul style="list-style-type: none"> ➤ Open: Open a "*.pcap" file and view captured packets with NuSet-MiniTAP. ➤ Save: Save the captured packets as a file in the format of "*.pcap". ➤ Start/Stop: Start/Stop packet capturing. ➤ Setting: A Capture Settings window will pop up, allowing you to set memory buffer size (KB). <div data-bbox="1010 1713 1495 1973"> </div>

Function Descriptions – Report

Capture Network Port A0/A1 Packets (Contd.)

No #	Delta Time(us)	Length(with CRC)	DA	SA	VLAN	Protocol	DIP	SIP
1	0	64	A5:5A:A5:5A:A5:5A	A5:5A:A5:5A:A5:5A	n/a	n/a	n/a	n/a
2	7	64	A5:5A:A5:5A:A5:5A	A5:5A:A5:5A:A5:5A	n/a	n/a	n/a	n/a
3	6	64	A5:5A:A5:5A:A5:5A	A5:5A:A5:5A:A5:5A	n/a	n/a	n/a	n/a
4	7	64	A5:5A:A5:5A:A5:5A	A5:5A:A5:5A:A5:5A	n/a	n/a	n/a	n/a
5	7	64	A5:5A:A5:5A:A5:5A	A5:5A:A5:5A:A5:5A	n/a	n/a	n/a	n/a
6	7	64	A5:5A:A5:5A:A5:5A	A5:5A:A5:5A:A5:5A	n/a	n/a	n/a	n/a
7	6	64	A5:5A:A5:5A:A5:5A	A5:5A:A5:5A:A5:5A	n/a	n/a	n/a	n/a
8	7	64	A5:5A:A5:5A:A5:5A	A5:5A:A5:5A:A5:5A	n/a	n/a	n/a	n/a

Item Name	Value
Ethernet II	
Destination	A5:5A:A5:5A:A5:5A
Source	A5:5A:A5:5A:A5:5A
Type	0x855A

```

00000000 A5 5A A5 5A A5 5A A5 5A A5 5A A5 5A A5 5A .Z.Z.Z.Z.Z.Z.Z
00000010 A5 5A A5 5A A5 5A A5 5A A5 5A A5 5A A5 5A .Z.Z.Z.Z.Z.Z.Z
00000020 A5 5A A5 5A A5 5A A5 5A A5 5A A2 00 07 00 .Z.Z.Z.Z.Z.Z.Z
00000030 00 00 5F 06 BB 99 34 3D A5 5A A5 5A E7 00 6D 51 ...4=.Z.Z.Z.Z.Q

```

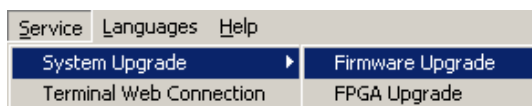
Fields down below display information including captured packets' **Delta Time (µs)**, **Packet Length (with CRC)**, **DA (Destination Address)**, **SA (Source Address)**, **VLAN**, **Protocol**, **DIP (Destination IP Address)**, and **SIP (Source IP Address)**. Also, you can view the content of the captured packets in the bottom field.

3.1.4. Service

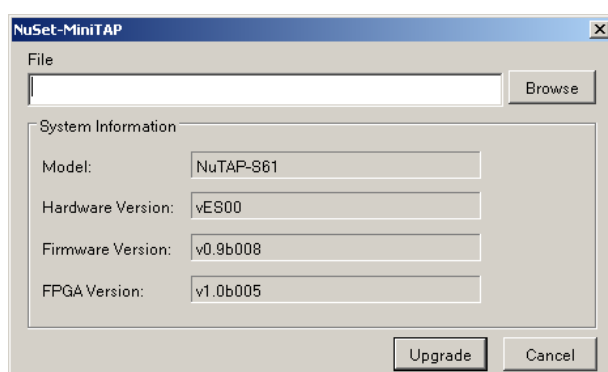


Function Descriptions – Service

The **System Upgrade** function located on the **Menu Bar** allows you to upgrade NuTAP-S61/NuTAP-311's firmware and FPGA. The following section will demonstrate how to upgrade NuTAP-S61/NuTAP-311's firmware with NuSet-MiniTAP. The processes for upgrading firmware and FPGA are quite the same and can be related.

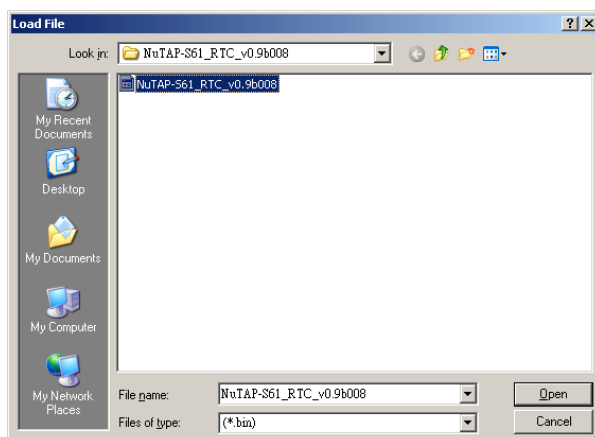


1. Please click **Service** → **System Upgrade** → **Firmware Upgrade** on the **Menu Bar**. If you want to upgrade FPGA, please choose **FPGA Upgrade**.

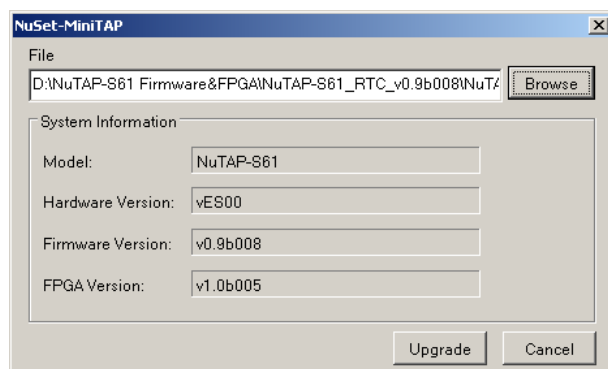


2. A **NuSet-MiniTAP** window will pop up. Please click the **Browse** button.

System Upgrade

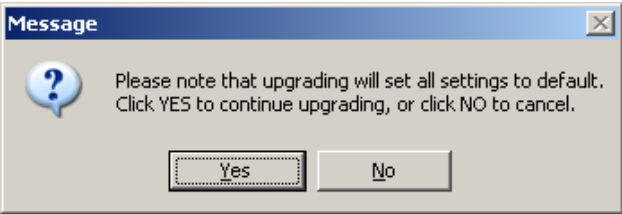
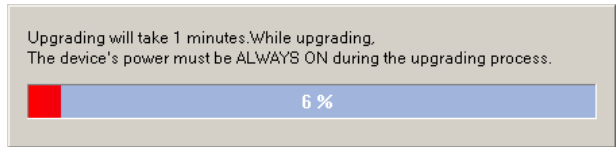
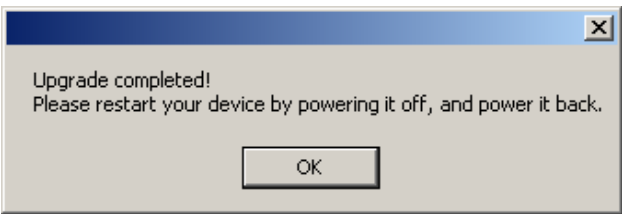


3. A **Load File** window will pop up. Please choose the firmware file saved on your PC. The firmware/FPGA file should be in the format of "***.bin**". Click **Open** after you've chosen the file.



4. Click **Upgrade** button to start upgrading NuTAP-S61/NuTAP-311's firmware.

Function Descriptions – Service

System Upgrade (Contd.)		5. Please note that the upgrading process will set all settings to default. Click YES to continue the upgrading process.
		6. NuSet-MiniTAP will start upgrading firmware. Please note that during this process, NuTAP-S61/NuTAP-311's power must be ALWAYS on.
		7. Upgrade complete! NuTAP-S61 /NuTAP-311 will reboot after upgrading firmware.
Terminal Web Connection	The Terminal Web Connection function will open your web browser and connect to NuTAP-S61/NuTAP-311's configuration webpage.	

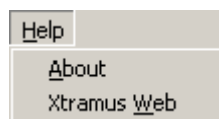
3.1.5. Language



Function Descriptions – Language

English/ Chinese Simplified	NuSet-MiniTAP has 2 different languages for its UI available. You can set the language of UI to either English or Simplified Chinese .
-----------------------------------	---

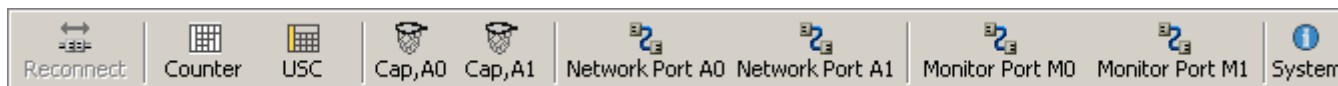
3.1.6. Help



Function Descriptions – Help





About	An “ About ” window will pop up and show detailed system information.
Xtramus Web	Open your default web browser and access Xtramus Website (www.xtramus.com).

3.2. Quick Launch Buttons




These **Quick Launch Buttons** allow you to reconnect NuTAP-S61/NuTAP-311, view counter/USC (Universal Stream Counter) statistics and chart, set packet capturing criteria, and make Network Port A0/A1, Monitor Port A0/A1 and system configurations. Please refer to the section down below for more detail descriptions regarding to **Quick Launch Buttons**.


3.2.1. Reconnect

Function Descriptions – Reconnect	
	If the connection between your PC and NuTAP-S61/NuTAP-311 is down, a “ Disconnected ” icon  Disconnected will be shown in “ System Connection Status ”.
	Press Reconnect button  to re-establish the connection between your PC and NuTAP-S61/NuTAP-311. If the connection has been established successfully, a message window will pop up, and the “ System Connection Status ” will be shown as “ Connected ”  Connected.



3.2.2. Counter

Function Descriptions – Counter	
	The Counter Report button located on the Quick Launch Buttons allows you to view Network Ports and Monitor Ports’ counter reports and charts on the Main Display Screen . You can save the test statistics here as well. For more detail information, please refer to 3.7. Counter Report on page 34 .

3.2.3. USC (Universal Stream Counter)



Function Descriptions – USC	
	Each of NuTAP-S61/NuTAP-311’s Network Port supports two sets of Universal Stream Counter (USC) . The USC button located on the Quick Launch Buttons allows you to view USC statistics on the Main Display Screen . You can save the USC statistics here as well. For more detail information, please refer to 3.8. Universal Stream Counter (USC) Report on page 38 .

3.2.4. Cap, A0/A1

Function Descriptions – Cap, A0/A1	
 	The Cap, A0/A1 buttons located on the Quick Launch Buttons allow you to capture packets flowing through Network Port A0/A1 . For detail description regarding to this function, please refer to 3.1.3. Report, Capture Network Port A0/A1 Packets section on page 14 .



3.2.5. Network Port A0/A1

Function Descriptions – Network Port A0/A1

 Network Port A0	The Network Port A0/A1 buttons located on the Quick Launch Buttons allow you to make settings regarding to Network Port A0/A1 on the Main Display Screen . For more detail information, please refer to 3.5. Network Port Settings on page 21 .
 Network Port A1	


3.2.6. Monitor Port M0/M1

Function Descriptions – Monitor Port M0/M1

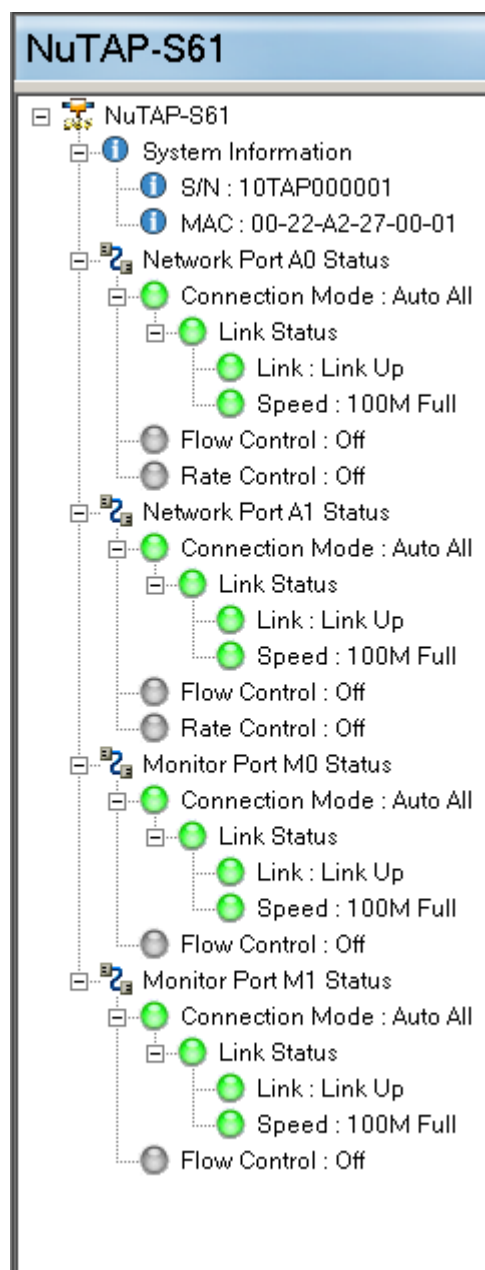
 Monitor Port M0	The Monitor PortM0/M1 buttons located on the Quick Launch Buttons allow you to make settings regarding to Monitor Port M0/M1 on the Main Display Screen . For more detail information, please refer to 3.6. Monitor Port Settings on page 33 .
 Monitor Port M1	



3.2.7. System

Function Descriptions – System

 System	The System button located on the Quick Launch Buttons allows you to set NuTAP-S61/NuTAP-311's IP , DNS , and TFTP here in this field. These settings will be used when connecting NuTAP-S61/NuTAP-311 to an existing network and access NuTAP-S61/NuTAP-311 via configuration web pages. For detail description regarding to this function, please refer to 3.1.2. Config, System Configuration on page 13 .
--	---



3.3. System Status Overview



The **System Status Overview** allows you to view NuTAP-S61/NuTAP-311's system information, Network Port A0/A1 status, and Monitor Port M0/M1 status. You can unfold the list with the  button, and fold the list with the  button.

3.4. Test Running Status Icon

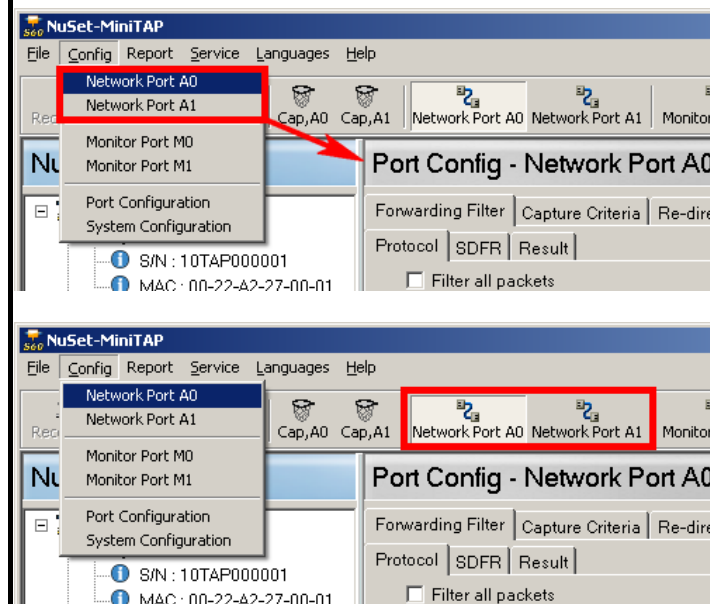
The **Test Running Status Icon** indicates if there's a test running.

Test Running Status Icon	
	No test is underway
	Test is running

3.5. Network Port Setting

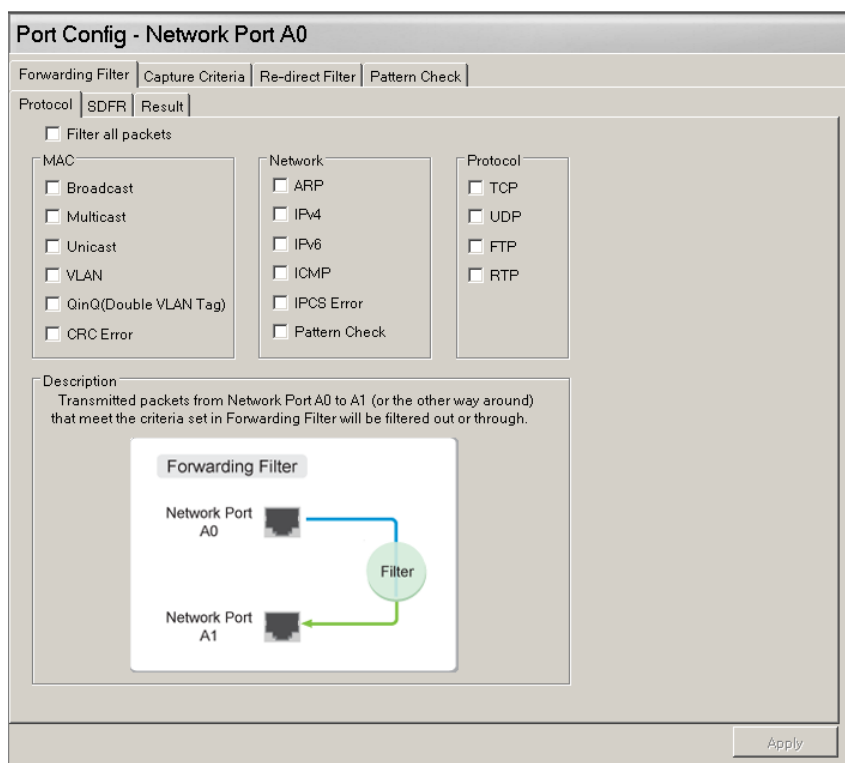
You can configure filtering/capture criteria and pattern check for Network Port A0/A1 in the **Port Config – Network Port** screen. There are two ways to access **Port Config – Network Port**:

Accessing Port Config – Network Port



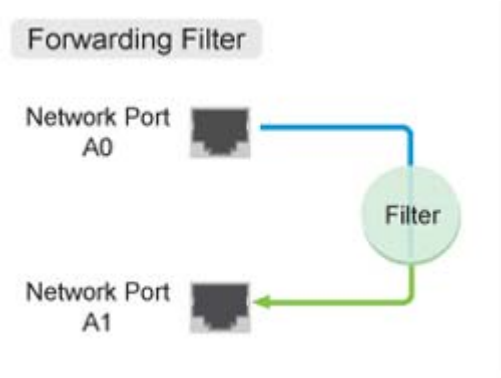
- Click **Network Port A0/A1** located on **Config** in the **Menu Bar**.

- Click the **Network Port A0/A1** button located on **Quick Launch Buttons**.



NuSet-MiniTAP's Network Port settings include **Forwarding Filter**, **Capture Criteria**, **Re-direct Filter**, and **Pattern Check**. Please see the sections down below for detail descriptions.

3.5.1. Forwarding Filter



With **Forwarding Filter**, NuTAP-S61/NuTAP-311 will transmit packets from Network Port A0 to A1 (or the other way around) that meet the criteria set in **Forwarding Filter** will be filtered out or through. The **Forwarding Filter** setting screen contains three tab-menus: **Protocol**, **SDFR** (Self-Discover Filtering Rules), and **Result**.

A. Forwarding Filter – Protocol

The screenshot shows the 'Protocol' tab of the 'Forwarding Filter' configuration screen. The interface includes three main sections: 'Filter all packets' (with a checkbox), 'MAC' (with checkboxes for Broadcast, Multicast, Unicast, VLAN, QinQ(Double VLAN Tag), and CRC Error), 'Network' (with checkboxes for ARP, IPv4, IPv6, ICMP, IPCS Error, and Pattern Check), and 'Protocol' (with checkboxes for TCP, UDP, FTP, and RTP). Below these sections is a 'Description' area containing a diagram of the Forwarding Filter and an 'Apply' button at the bottom right.

Protocol – Filter All Packets

Click the **Filter all packets** check box to filter all packets.

Protocol – MAC

Broadcast VLAN	Multicast QinQ (Double VLAN TAG)	Unicast CRC Error
-------------------	-------------------------------------	----------------------


Protocol – Network

ARP ICMP	IPv4 IPCS Error	IPv6 Pattern Check
-------------	--------------------	-----------------------

Protocol – Protocol

TCP	UDP	FTP	RTP
-----	-----	-----	-----

Protocol – Button

	Apply: Apply and save the changes you've made on this page. After making any settings on this page, you must click the Apply button or all changes will be lost.
---	--

B. Forwarding Filter – SDFR

SDFR

SDFR (Self-Discover Filtering Rules) is a technology that makes packet capturing/filtering over Ethernet easy and convenient. SDFR parameters include filter of Layer 2 Destination MAC Address (**DA**), Source MAC Address (**SA**), Layer 3 Destination IP Address (**DIP**), and Source IP Address (**SIP**). Each filter is independent and can be activated in any combinations.

SDFR – Choosing SDFR Parameters

You can choose the criteria with the check boxes. The SDFR parameters available here includes:

- **DA:** Destination MAC Address
- **SA:** Source MAC Address
- **DIP:** Destination IP Address
- **SIP:** Source IP Address

As mentioned above, each parameter is independent and can be activated in any combinations of **DA**, **SA**, **SIP**, **DIP**, **DA & SA**, **DA & SIP**, **DA & DIP**, **SA & SIP**, **SA & DIP**, **SIP & DIP**, and **DA & SA & SIP & DIP**.

- ☐ DA
- ☐ SA
- ☐ SIP
- ☐ DIP
- ☐ DA & SA
- ☐ DA & SIP
- ☐ DA & DIP
- ☐ SA & SIP
- ☐ SA & DIP
- ☐ SIP & DIP
- ☐ DA & SA & SIP & DIP

SDFR – Rule Setting

The **Rule Setting** field allows you to set and input the value of **DA**, **SA**, **DIP**, and **SIP**. The value of SDFR parameters can be set as **Single**, **Pair**, and **Range**. The following descriptions will use **DA** as example.

DA Single 00-00-00-00-00-00

Single: A single value will be used as SDFR parameter.

DA Pair 00-00-00-00-00-00 or 00-00-00-00-00-00

Pair: Two values will be used as SDFR parameters.

DA Range 00-00-00-00-00-00 <=DA<= 00-00-00-00-00-00

Range: Values within the range of the two values set here will be used as SDFR parameters.

SDFR – Current Filter/Technical Terms

The **Current Filter** field displays the settings you've made, while the **Technical Terms** field displays the explanations for **DA**, **SA**, **DIP**, and **SIP**.

SDFR – Button

Apply

Apply: Apply and save the changes you've made on this page. After making any settings on this page, you must click the **Apply** button or all changes will be lost.

C. Forwarding Filter – Result

Protocol

SDFR

Result

(CRC error)

+

(DA & SA & SIP & DIP)

+

DA (Range)

:

00-00-00-00-00-00

-

FF-FF-FF-FF-FF-FF

SA (Range)

:

11-11-11-11-11-11

-

22-22-22-22-22-22

DIP (Range)

:

192.168.1.1

-

192.168.1.100

SIP (Range)

:

192.168.10.1

-

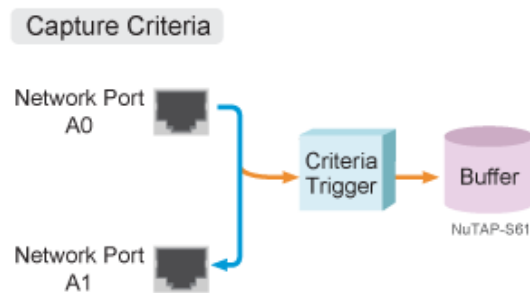
192.168.10.100

Apply

Result

The **Result** page will display the settings you've made in **Protocol** and **SDFR** pages.

3.5.2. Capture Criteria



With **Capture Criteria**, transmitted packets from NuTAP-S61/NuTAP-311's Network Port A0 to A1 (or the other way around) that meet the criteria set in Capture Criteria will be captured and stored in NuTAP-S61's buffer memory. All packets captured and stored this way can be accessed via any Monitor Port upon user requests.

A. Capture Criteria – Protocol

The screenshot shows the 'Capture Criteria' configuration window. It has tabs for 'Forwarding Filter', 'Capture Criteria' (selected), 'Re-direct Filter', and 'Pattern Check'. Under 'Capture Criteria', there are three sections: 'MAC' (with checkboxes for Broadcast, Multicast, Unicast, VLAN, QinQ(Double VLAN Tag), and CRC Error), 'Network' (with checkboxes for ARP, IPv4, IPv6, ICMP, IPCS Error, and Pattern Check), and 'Protocol' (with checkboxes for TCP, UDP, FTP, and RTP). A 'Description' box contains text explaining the capture process and includes a smaller version of the diagram. An 'Apply' button is at the bottom right.

Protocol – Capture All Packets

Click the **Capture All Packets** check box to capture all packets.

Protocol – MAC

Broadcast	Multicast	Unicast
VLAN	QinQ (Double VLAN TAG)	CRC Error

Protocol – Network

ARP	IPv4	IPv6
ICMP	IPCS Error	Pattern Check

Protocol – Protocol

TCP	UDP	FTP	RTP
-----	-----	-----	-----

Protocol – Button

	Apply: Apply and save the changes you've made on this page. After making any settings on this page, you must click the Apply button or all changes will be lost.
--	--

B. Capture Criteria – SDFR

SDFR

SDFR (Self-Discover Filtering Rules) is a technology that makes packet capturing/filtering over Ethernet easy and convenient. SDFR parameters include filter of Layer 2 Destination MAC Address (**DA**), Source MAC Address (**SA**), Layer 3 Destination IP Address (**DIP**), and Source IP Address (**SIP**). Each filter is independent and can be activated in any combinations.

SDFR – Choosing SDFR Parameters

You can choose the criteria with the check boxes. The SDFR parameters available here includes:

- **DA:** Destination MAC Address
- **SA:** Source MAC Address
- **DIP:** Destination IP Address
- **SIP:** Source IP Address

As mentioned above, each parameter is independent and can be activated in any combinations of **DA**, **SA**, **SIP**, **DIP**, **DA & SA**, **DA & SIP**, **DA & DIP**, **SA & SIP**, **SA & DIP**, **SIP & DIP**, and **DA & SA & SIP & DIP**.

- ☐ DA
- ☐ SA
- ☐ SIP
- ☐ DIP
- ☐ DA & SA
- ☐ DA & SIP
- ☐ DA & DIP
- ☐ SA & SIP
- ☐ SA & DIP
- ☐ SIP & DIP
- ☐ DA & SA & SIP & DIP

SDFR – Rule Setting

The **Rule Setting** field allows you to set and input the value of **DA**, **SA**, **DIP**, and **SIP**. The value of SDFR parameters can be set as **Single**, **Pair**, and **Range**. The following descriptions will use **DA** as example.

DA Single 00-00-00-00-00-00

Single: A single value will be used as SDFR parameter.

DA Pair 00-00-00-00-00-00 or 00-00-00-00-00-00

Pair: Two values will be used as SDFR parameters.

DA Range 00-00-00-00-00-00 ≤DA≤ 00-00-00-00-00-00

Range: Values within the range of the two values set here will be used as SDFR parameters.

SDFR – Current Filter/Technical Terms

The **Current Filter** field displays the settings you've made, while the **Technical Terms** field displays the explanations for **DA**, **SA**, **DIP**, and **SIP**.

SDFR – Button

Apply

Apply: Apply and save the changes you've made on this page. After making any settings on this page, you must click the **Apply** button or all changes will be lost.

C. Capture Criteria – Result

Protocol
SDFR
Result

```

(CRC error)
+
(DA & SA & SIP & DIP)
+
DA (Range)      : 00-00-00-00-00-00      -      FF-FF-FF-FF-FF-FF
SA (Range)      : 11-11-11-11-11-11      -      22-22-22-22-22-22
DIP (Range)     : 192.168.1.1             -      192.168.1.100
SIP (Range)     : 192.168.10.1            -      192.168.10.100

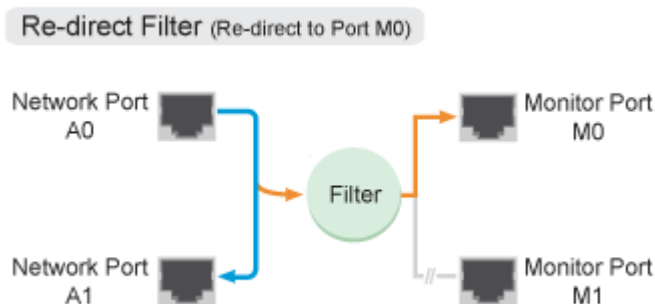
```

Apply

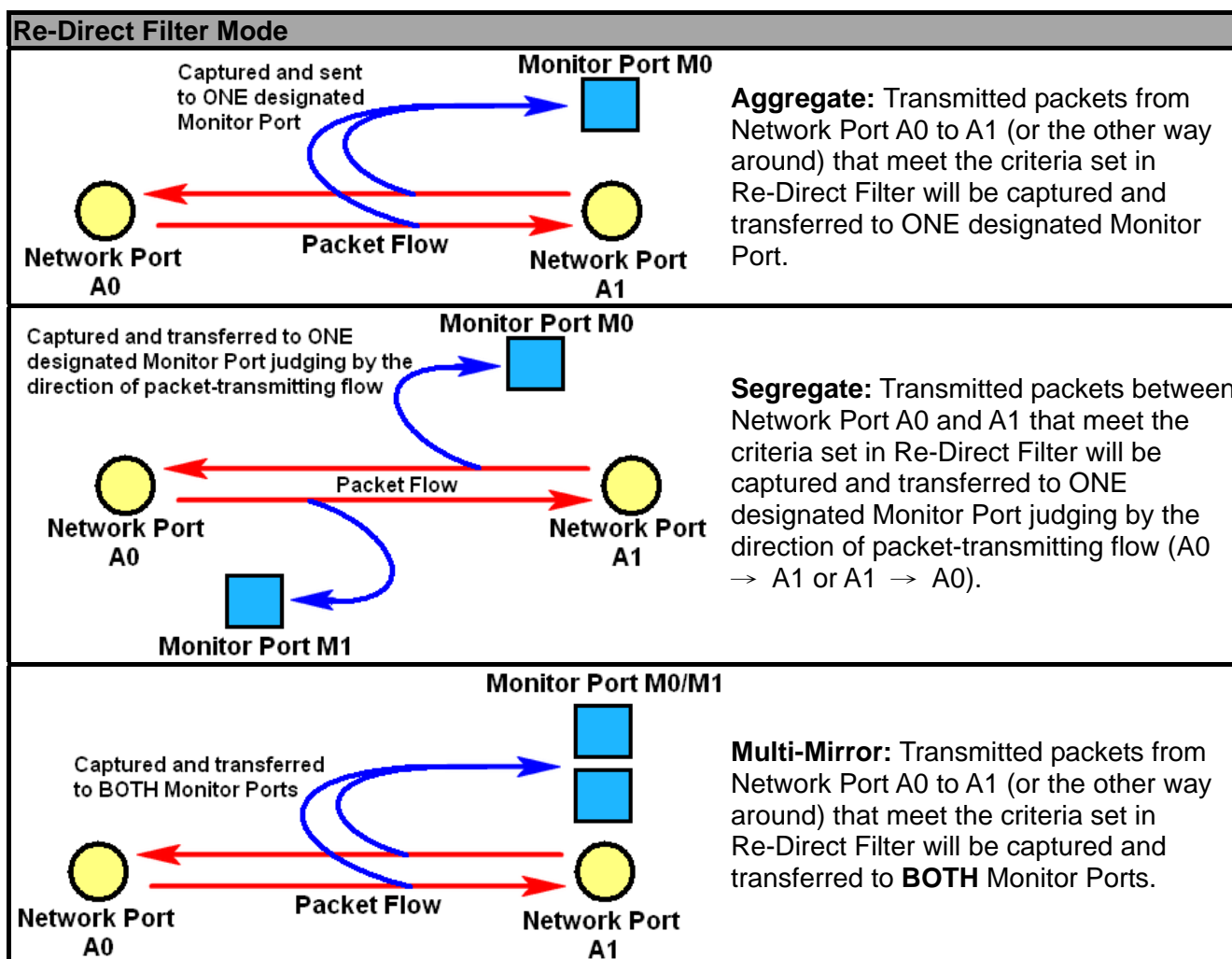
Result

The **Result** page will display the settings you've made in **Protocol** and **SDFR** pages.

3.5.3. Re-Direct Filter



With **Re-Direct Filter**, transmitted packets from specific **Network Ports** can be filtered and sent to the designated **Monitor Ports**. Re-Direct Filter can be divided into **Aggregate**, **Segregate**, and **Multi-Mirror**.



A. Re-Direct Filter – Protocol

Forwarding Filter
Capture Criteria
Re-direct Filter
Pattern Check

Protocol
SDFR
Session
Result

Direction
☒ Re-direct to Monitor Port M0
☐ Re-direct to Monitor Port M1
☐ Re-direct all packets

MAC
☐ Broadcast
☐ Multicast
☐ Unicast
☐ VLAN
☐ QinQ(Double VLAN Tag)
☐ CRC Error

Network
☐ ARP
☐ IPv4
☐ IPv6
☐ ICMP
☐ IPCS Error
☐ Pattern Check

Protocol
☐ TCP
☐ UDP
☐ FTP
☐ RTP

Description

With Re-direct Filter, transmitted packets from specific Network Ports can be filtered and sent to the designated Monitor Ports. Re-direct Filter can be divided into Aggregate, Segregate, and Multi-mirror.

Re-direct Filter (Re-direct to Port M0)

Apply

Protocol – Direction

The **Direction** field allows you to set the direction of the packet flow.

- **Re-Direct to Monitor Port M0:** Re-direct packets that meets the criteria from the Network Port to Monitor Port M0.
- **Re-Direct to Monitor Port M1:** Re-direct packets that meets the criteria from the Network Port to Monitor Port M1.

Please note that the figure displayed in the **Description** field will change according to the re-direct setting you've made here.

Protocol – Re-Direct All Packets

Click the **Re-direct all packets** check box to re-direct all packets.

Protocol – MAC

Broadcast	Multicast	Unicast
VLAN	QinQ (Double VLAN TAG)	CRC Error

Protocol – Network

ARP	IPv4	IPv6
ICMP	IPCS Error	Pattern Check

Protocol – Protocol

TCP	UDP	FTP	RTP
-----	-----	-----	-----

Protocol – Button

Apply	Apply: Apply and save the changes you've made on this page. After making any settings on this page, you must click the Apply button or all changes will be lost.
-------	--

B. Re-Direct Filter – SDFR

SDFR

SDFR (Self-Discover Filtering Rules) is a technology that makes packet capturing/filtering over Ethernet easy and convenient. Each filter is independent and can be activated in any combinations.

SDFR – Choosing SDFR Parameters

You can choose the criteria with the check boxes. The SDFR parameters available here includes:

- **DA:** Destination MAC Address
- **SA:** Source MAC Address
- **VID:** VLAN ID
- **DIP:** Destination IP Address
- **SIP:** Source IP Address
- **DPort:** Destination Port
- **SPort:** Source Port

As mentioned above, each parameter is independent and can be activated in any combinations of **DA**, **SA**, **VID**, **SIP**, **DIP**, **SPort**, **DPort**, **DA & SA**, **DA & SA & VID**, **DA & SIP**, **DA & DIP**, **SA & SIP**, **SA & DIP**, **SIP & DIP**, **SIP & SPort**, **SIP & DPort**, **DIP & SPort**, **DIP & DPort**, **SIP & DIP & SPort**, **SIP & DIP & DPort**, **SIP & DIP & SPort & DPort**, **VID & SIP & DIP & SPort & DPort**, **DA & SA & SIP & DIP**, **DA & SA & SIP & DIP & SPort & DPort**, and **DA & SA & VID & SIP & DIP & SPort & DPort**.

SDFR – Rule Setting

The **Rule Setting** field allows you to set and input the value of **DA**, **SA**, **VID**, **DIP**, **SIP**, **DPort** and **SPort**. The value of SDFR parameters can be set as **Single**, **Pair**, and **Range**. The following descriptions will use **DA** as example.

DA [Single] 00-00-00-00-00-00	Single: A single value will be used as SDFR parameter.
DA [Pair] 00-00-00-00-00-00 or 00-00-00-00-00-00	Pair: Two values will be used as SDFR parameters.
DA [Range] 00-00-00-00-00-00 ≤DA≤ 00-00-00-00-00-00	Range: Values within the range of the two values set here will be used as SDFR parameters.

SDFR – Current Filter/Technical Terms

The **Current Filter** field displays the settings you've made, while the **Technical Terms** field displays the explanations for **DA**, **SA**, **VID**, **DIP**, **SIP**, **DPort**, and **SPort**.

SDFR – Button

Apply: Apply and save the changes you've made on this page. After making any settings on this page, you must click the **Apply** button or all changes will be lost.

C. Re-Direct Filter – Session

Protocol	SDFR	Session	Result
<div> <div>A0->M0/M1</div> <div> <input type="checkbox"/> SIP: <input type="text" value="0 . 0 . 0 . 0 . 0"/> <input type="checkbox"/> DIP: <input type="text" value="0 . 0 . 0 . 0 . 0"/> </div> <div> <input type="checkbox"/> SIP: <input type="text" value="0 . 0 . 0 . 0 . 0"/> <input type="checkbox"/> DIP: <input type="text" value="0 . 0 . 0 . 0 . 0"/> </div> </div>			
<div> <div>A0->M0/M1</div> <div> <input type="checkbox"/> SIP: <input type="text" value="0 . 0 . 0 . 0 . 0"/> <input type="checkbox"/> DIP: <input type="text" value="0 . 0 . 0 . 0 . 0"/> </div> <div> <input type="checkbox"/> SIP: <input type="text" value="0 . 0 . 0 . 0 . 0"/> <input type="checkbox"/> DIP: <input type="text" value="0 . 0 . 0 . 0 . 0"/> </div> </div>			
<div> <div>Technical Terms</div> <div> DIP : Destination IP SIP : Source IP Address </div> </div>			
			Apply

Session

NuSet-MiniTAP supports **two Session Filters** for each **Network Port**. Each **Session Filter** allows you to set the packets flow from the SIP (Source IP Address) to the DIP (Destination IP Address). The IP addresses that serve as SIP and DIP will be switched (Previous SIP → Current DIP, Previous DIP → Current SIP) afterward.

To set the **Session Filters**, please check the check box and input the SIP and DIP.

Session – Button

Apply

Apply: Apply and save the changes you've made on this page. After making any settings on this page, you must click the **Apply** button or all changes will be lost.

D. Re-Direct Filter – Result

Protocol	SDFR	Session	Result
<div>(Re-direct to Monitor Port M0) + (Broadcast + TCP + UDP) + (DA & SA & VID & SIP & DIP & SPort & DPort) + (Sesseion)</div>			
			Apply

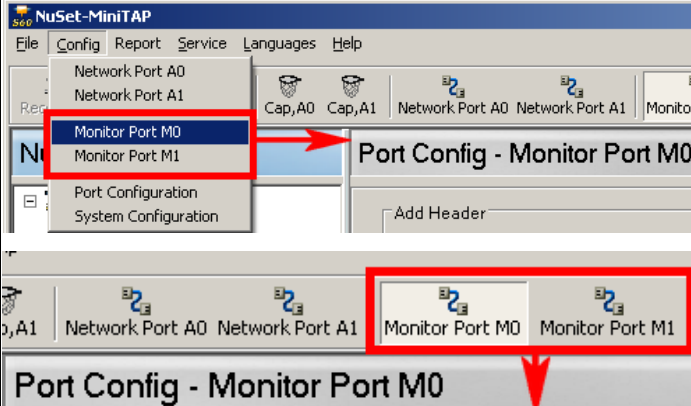
Result

The **Result** page will display the settings you've made in **Protocol**, **SDFR**, and **Session** pages.

3.6. Monitor Port Setting

You can configure filtering/capture criteria and pattern check for Monitor Port M0/M1 in the **Port Config – Monitor Port** screen. There are two ways to access **Port Config – Monitor Port**:

Accessing Port Config – Monitor Port



- Click **Monitor Port M0/M1** located on **Config** in the **Menu Bar**.
- Click the **Monitor Port M0/M1** button located on **Quick Launch Buttons**.

Port Config - Monitor Port M0

Add Header

☐ DA/SA
☐ Time Stamp
☐ VLAN TAG

☐ IP Header
☐ UDP Header
☐ IP Fragment

Parameter

DA:

SA:

VID:

DIP:

SIP:

DPort:

SPort:

MTU: Bytes

Port Config – Monitor Port M0/M1

The **Monitor Port** setting page allows you to set the headers that you would like to add to packets transmitted from **Monitor Port M0/M1**. NuSet-MiniTAP supports headers including **DA/SA**, **Time Stamp**, **VLAN TAG**, **IP Header**, **UDP Header**, and **IP Fragment**. These headers are corresponding with the value inputting field down below the Monitor Port setting page as show in the table here:

- | | |
|---|--|
| <ul style="list-style-type: none"> ➤ DA/SA: Destination/Source MAC Address. ➤ Time Stamp: N/A. However, a timestamp header will be added to the packets. ➤ VLAN TAG: VID (VLAN ID). | <ul style="list-style-type: none"> ➤ IP Header: DIP (Destination IP Address) and SIP (Source IP Address). ➤ UDP Header: DPort (Destination Port) and SPort (Source Port). ➤ IP Fragment: MTU (Maximum Transmission Unit) |
|---|--|

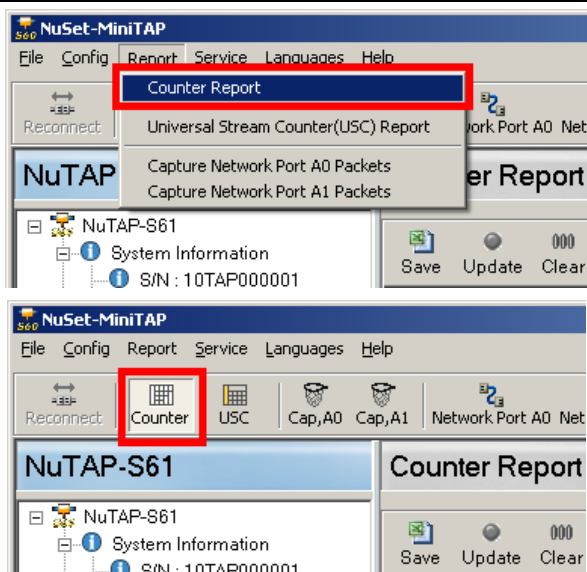
Button

Apply: Apply and save the changes you've made on this page. After making any settings on this page, you must click the **Apply** button or all changes will be lost.

3.7. Counter Report

You can view NuSet-MiniTAP's counter report/chart of NuTAP-S61/NuTAP-311's Network Port and Monitor Port with **Counter Report**. There are two ways to access **Counter Report**:

Accessing Counter Report



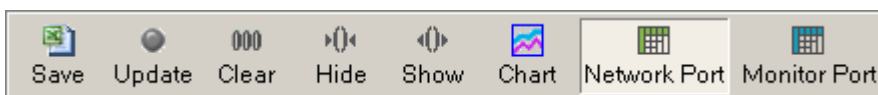
- Click **Counter Report** located on **Report** in the **Menu Bar**.
- Click the **Counter Report** button located on **Quick Launch Buttons**.

Counter Report			
<div> <div> Save Update Clear Hide Show Chart Network Port Monitor Port </div> <div> A B </div> </div>			
Network Port	Port A0	Port A1	Total : 2 Ports
Link Status	Link Up	Link Up	n/a
Speed	100M Full	100M Full	n/a
Tx : Packet	0	0	0
Tx : Byte	0	0	0
Tx : Line Rate(Mbps)	0.00	0.00	n/a
Tx : Utilization(%)	0.00	0.00	n/a
Tx : Pause	0	0	0
Rx : Packet	0	0	0
Rx : Byte	0	0	0
Rx : Line Rate(Mbps)	0.00	0.00	n/a
Rx : Utilization(%)	0.00	0.00	n/a
Rx : Pause	0	0	0
Collision	-	-	-
Tx : Collision	0	0	0
Tx : Single Collision	0	0	0
Tx : Multi Collision	0	0	0
Tx : Excession Collision	0	0	0
Error & Loss Packet	-	-	-
Rx : Dribble Bit	0	0	0
Rx : Alignment Error	0	0	0

Accessing Counter Report

A	Control Buttons	These buttons allow you to save the counter report, start/stop updating counter report, clear all statistics, view charts, and switch to display Monitor Port/Network Port.
B	Main Display Window	You can view counter statistics here in this section.

Please see the sections down below for detail information regarding to **Counter Report**.

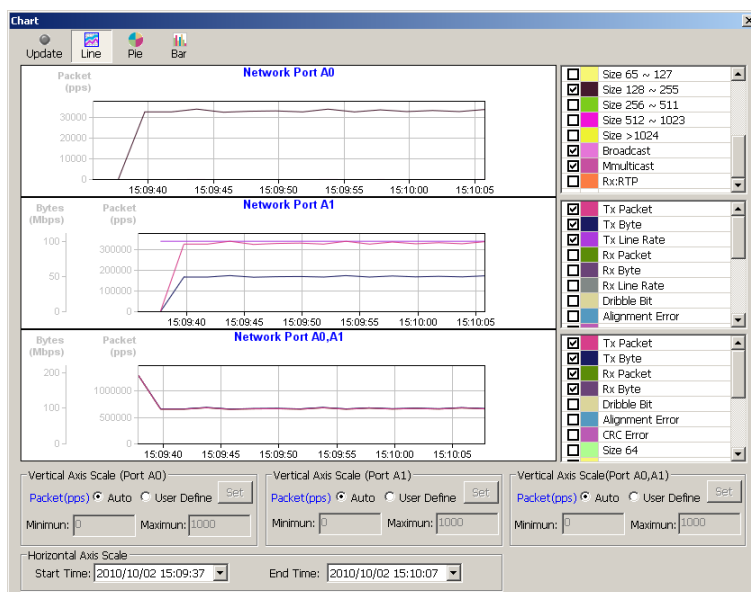


Report Control Buttons Descriptions

	The Save button allows you to save the current Network Port and Monitor Port counter reports to Microsoft Excel ® format files.
	The Update button allows you to start/stop updating statistics displayed in the Main Display Window .
	The Clear button allows you to clear all statistics displayed in the Main Display Window .
	The Hide button allows you to hide all Network Ports and Monitor Ports' TX/Rx statistics, as well as fold all tree style tab statistics in the Main Display Window .
	The Show button allows you to show all Network Ports and Monitor Ports' TX/Rx statistics, as well as unfold all tree style tab statistics in the Main Display Window .
	<p>The Chart button allows you to view Network Port's Counter Report Chart on a pop-up Chart window. There are three different display modes for Counter Report Chart: Line, Pie, and Bar.</p> <ul style="list-style-type: none"> ➤ Update: Start/Stop updating Counter Report Chart. ➤ Line: Switch the chart display mode to Line Mode. ➤ Pie: Switch the chart display mode to Pie Mode. ➤ Bar: Switch the chart display mode to Bar Mode.



Line Mode



The **Line Mode** displays the statistics about the of packets flow through **Network Port A0**, **Network Port A1**, and **Network Port A0/A1**. To display the statistics as line on the chart, please click the check box of that statistics.

Vertical Axis Scale (Port A0)

Packet(pps) ☒ Auto ☐ User Define

Minimum: 0 Maximum: 1000

Start Time: 2010/10/02 15:09:37

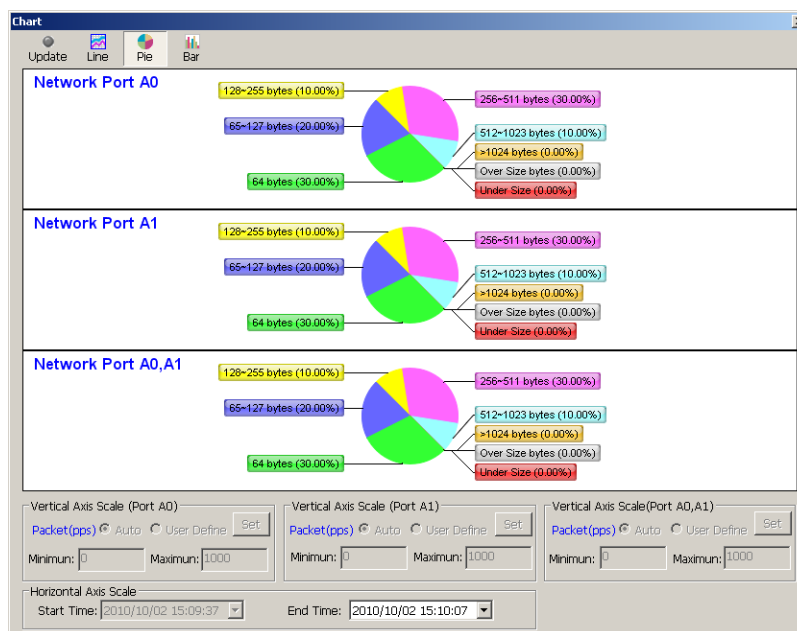
End Time: 2010/10/02 15:10:07

The **Vertical Axis Scale** fields allow you to set the scale in **pps** (Packets per Second) of the X-Axis of the **Line Chart**. The **Vertical Axis Scale** can be set to **Auto**, or you can set its minimum/maximum value by **User Define**.

The **Horizontal Axis Scale** field allows you to set the scale of the Y-Axis of the **Line Chart**. Click the scroll-down menus of **Start Time** and **End Time** to set the statistics during a period of time.

Report Control Buttons Descriptions

Pie Mode



The **Pie Mode** displays the statistics regarding to the lengths of packets flow through **Network Port A0**, **Network Port A1**, and **Network Port A0/A1**. Packets are categorized into the following categories: **64 bytes**, **65~127 bytes**, **128~255 bytes**, **256~511 bytes**, **512~1023 bytes**, **>1024 bytes**, **Over Size byte**, and **Under Size**.

Also, clicking the **End Time** scroll-down menu and selecting a time listed here allows you to view the **Pie Chart** of that time.

End Time: 2010/10/02 15:47:53

2010/10/02 15:47:47

2010/10/02 15:47:49

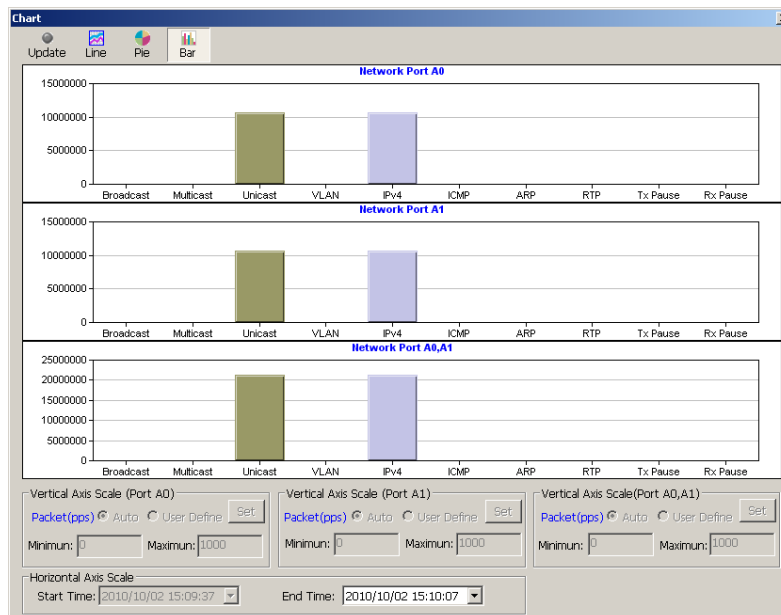
2010/10/02 15:47:52

2010/10/02 15:47:53

2010/10/02 15:47:56

Chart
(Contd.)

Bar Mode



The **Bar Mode** displays **Network Port A0**, **Network Port A1**, and **Network Port A0/A1**'s statistics including: **Broadcast**, **Multicast**, **VLAN**, **IPv4**, **ICMP**, **ARP**, **RTP**, and **Tx/Rx Pause**.

Also, clicking the **End Time** scroll-down menu and selecting a time listed here allows you to view the **Bar Chart** of that time.

End Time: 2010/10/02 15:47:53

2010/10/02 15:47:47

2010/10/02 15:47:49

2010/10/02 15:47:52

2010/10/02 15:47:53

2010/10/02 15:47:56

Report Control Buttons Descriptions

 Network Port

Counter Report				
<div> Save Update Clear Hide Show Chart Network Port Monitor Port </div>				
Network Port	Port A0	Port A1	Total : 2 Ports	
Link Status	Link Up	Link Up	n/a	
Speed	100M Full	100M Full	n/a	
Tx : Packet	0	0	0	
Tx : Byte	0	0	0	
Tx : Line Rate(Mbps)	0.00	0.00	n/a	
Tx : Utilization(%)	0.00	0.00	n/a	
Tx : Pause	0	0	0	
Rx : Packet	0	0	0	
Rx : Byte	0	0	0	
Rx : Line Rate(Mbps)	0.00	0.00	n/a	
Rx : Utilization(%)	0.00	0.00	n/a	
Rx : Pause	0	0	0	
<input type="checkbox"/> Collision	-	-	-	
Tx : Collision	0	0	0	
Tx : Single Collision	0	0	0	
Tx : Multi Collision	0	0	0	
Tx : Excession Collision	0	0	0	
<input type="checkbox"/> Error & Loss Packet	-	-	-	
Rx : Dribble Bit	0	0	0	
Rx : Alignment Error	0	0	0	

The **Network Port** button allows you to view **Counter Report** of NuTAP-S61/NuTAP-311's **Network Ports**.

 Monitor Port

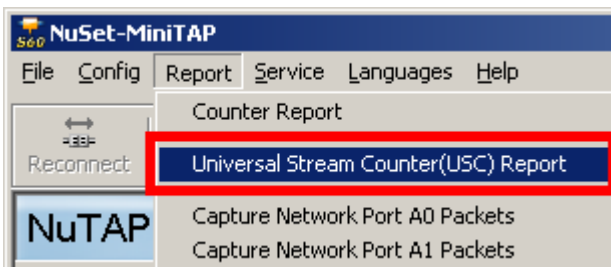
Counter Report				
<div> Save Update Clear Hide Show Chart Network Port Monitor Port </div>				
Monitor Port	Port M0	Port M1	Total : 2 Ports	
Link Status	Link Up	Link Up	n/a	
Speed	100M Full	100M Full	n/a	
Tx : Packet	3,333,300	3,333,300	6,666,600	
Tx : Byte	499,995,000	499,995,000	999,990,000	
Tx : Packet Rate(pps)	666,660	666,660	1,333,320	
Tx : Line Rate(Mbps)	100.00	100.00	n/a	
Tx : Utilization(%)	100.00	100.00	n/a	
Tx : Pause	0	0	0	
Rx : Byte	9,597,600	17,176,950	26,774,550	
Rx : Packet Rate(pps)	26,962	24,464	51,426	
Rx : Line Rate(Mbps)	4.04	3.67	n/a	
Rx : Utilization(%)	4.04	3.67	n/a	
Rx : Pause	0	0	0	
<input type="checkbox"/> Collision	-	-	-	
Tx : Collision Packet	0	0	0	
Tx : Collision Times	0	0	0	
<input type="checkbox"/> Layer 2 Packet Counters	-	-	-	
Rx : Broadcast	80	65	145	
Rx : Unicast	63,904	114,448	178,352	

The **Monitor Port** button allows you to view **Counter Report** of NuTAP-S61/NuTAP-311's **Monitor Ports**.

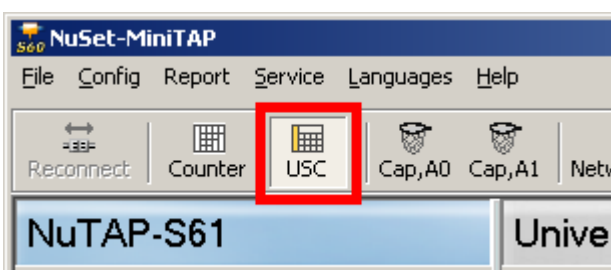
3.8. Universal Stream Counter (USC) Report

Each of NuTAP-S61/NuTAP-311's **Network Port** contains two sets of USC (Universal Stream Counter), allowing you to view real-time statistics of network events during packet monitoring and capturing. There are two ways to access **Universal Stream Counter Report**:

Accessing Universal Stream Counter (USC) Report



- Click **Universal Stream Counter (USC) Report** located on **Report** in the **Menu Bar**.



- Click the **Universal Stream Counter (USC) Report** button located on **Quick Launch Buttons**.

Universal Stream Counter Report

Save

Update

Clear

Hide

Show

Setting

Port A0/USC#0

Port A0/USC#1

Port A1/USC#0

Port A1/USC#1

Network Port A0/USC#0

DA	Line Rate(Mbps)	Packets
XX:XX:00-00-00-00	0.00	
XX:XX:00-00-00-01	0.00	
XX:XX:00-00-00-02	0.00	
XX:XX:00-00-00-03	0.00	
XX:XX:00-00-00-04	0.00	
XX:XX:00-00-00-05	0.00	
XX:XX:00-00-00-06	0.00	
XX:XX:00-00-00-07	0.00	
XX:XX:00-00-00-08	0.00	
XX:XX:00-00-00-09	0.00	

Network Port A0/USC#1

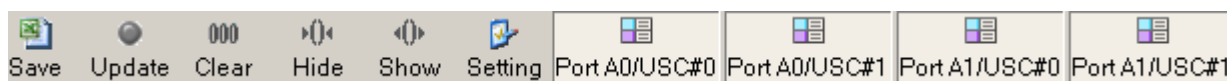
DA	Line Rate(Mbps)	Packets
XX:XX:00-00-00-00	0.00	
XX:XX:00-00-00-01	0.00	
XX:XX:00-00-00-02	0.00	
XX:XX:00-00-00-03	0.00	
XX:XX:00-00-00-04	0.00	
XX:XX:00-00-00-05	0.00	
XX:XX:00-00-00-06	0.00	
XX:XX:00-00-00-07	0.00	
XX:XX:00-00-00-08	0.00	
XX:XX:00-00-00-09	0.00	

Network Port A1/USC#0






DA	Line Rate(Mbps)	Packets
XX:XX:00-00-00-00	0.00	
XX:XX:00-00-00-01	0.00	
XX:XX:00-00-00-02	0.00	
XX:XX:00-00-00-03	0.00	
XX:XX:00-00-00-04	0.00	
XX:XX:00-00-00-05	0.00	
XX:XX:00-00-00-06	0.00	
XX:XX:00-00-00-07	0.00	
XX:XX:00-00-00-08	0.00	
XX:XX:00-00-00-09	0.00	

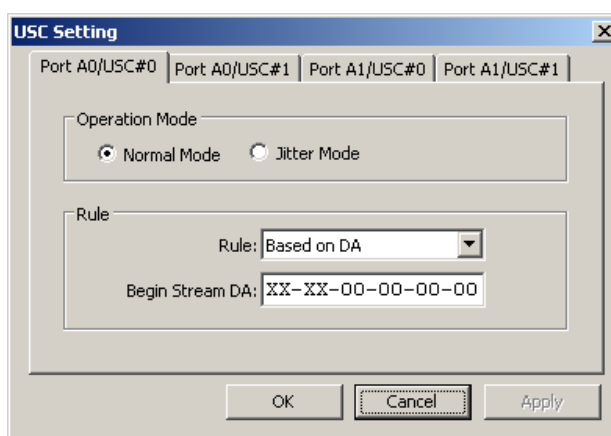
Network Port A1/USC#1

DA	Line Rate(Mbps)	Packets
XX:XX:00-00-00-00	0.00	
XX:XX:00-00-00-01	0.00	
XX:XX:00-00-00-02	0.00	
XX:XX:00-00-00-03	0.00	
XX:XX:00-00-00-04	0.00	
XX:XX:00-00-00-05	0.00	
XX:XX:00-00-00-06	0.00	
XX:XX:00-00-00-07	0.00	
XX:XX:00-00-00-08	0.00	
XX:XX:00-00-00-09	0.00	



Universal Stream Counter (USC) Control Buttons Descriptions

	The Save button allows you to save the current Universal Stream Counter reports to Microsoft Excel ® format files.
	The Update button allows you to start/stop updating statistics displayed in the Main Display Window .
	The Clear button allows you to clear all statistics displayed in the Main Display Window .
	The Hide button allows you to hide all statistics displayed in the Main Display Window .
	The Show button allows you to show all statistics displayed in the Main Display Window .



A **USC Setting** window will pop up if you click the **Setting** button, allowing you to set USC criteria for **Port A0/USC#0**, **Port A0/USC#1**, **Port A1/USC#0**, and **Port A1/USC#1**. To choose the Universal Stream Counter you would like to configure, please click the tab-menu on the upper part of the **USC Setting** window.



➤ Operation Mode

- **Normal Mode:** The Universal Stream Counter will run under **Normal Mode**.
- **Jitter Mode:** The Universal Stream Counter will run under **Jitter Mode**. Please note that when under **Jitter Mode**, additional statistics regarding to packet jitter will be displayed in the Universal Stream Counter Report:

Delta Time (ns)	Current	Current time interval between packets
	Maximum	Maximum time interval between packets
	Minimum	Minimum time interval between packets
Jitter (ns)	Max Delta Time – Min Delta Time = Jitter	

➤ Rule

- **Rule:** You can set the USC rule base on **DA**, **SA**, **VID**, **MPLS**, **DIP**, **SIP**, **DPort**, **SPort**, and **VLAN CoS** (VLAN Class of Service) with the **Rule** scroll-down menu.
- **Begin String:** You can input the value of **DA**, **SA**, **VID**, **MPLS**, **DIP**, **SIP**, **DPort**, **SPort**, and **VLAN CoS** (VLAN Class of Service) here in this field.

- **OK:** Apply the changes you've made and exit.
- **Cancel:** Cancel the changes you've made and exit.
- **Apply:** Apply the changes you've made without exit.

Universal Stream Counter (USC) Control Buttons Descriptions

The **Port A0/USC#0**, **Port A0/USC#1**, **Port A1/USC#0**, and **Port A1/USC#1** buttons allows you to display **Network Port A0's USC Counter #0**, **Network Port A0's USC Counter #1**, **Network Port A1's USC Counter #0**, and **Network Port A1's USC Counter #1**.

Port A0/USC#0

Port A0/USC#1

Port A1/USC#0

Port A1/USC#1

Network Port A0/USC#0			Network Port A0/USC#1		
DA	Line Rate(Mbps)	Packets	DA	Line Rate(Mbps)	Packets
XXXX-00-00-00-00	0.00		XXXX-00-00-00-00	0.00	
XXXX-00-00-00-01	0.00		XXXX-00-00-00-01	0.00	
XXXX-00-00-00-02	0.00		XXXX-00-00-00-02	0.00	
XXXX-00-00-00-03	0.00		XXXX-00-00-00-03	0.00	
XXXX-00-00-00-04	0.00		XXXX-00-00-00-04	0.00	
XXXX-00-00-00-05	0.00		XXXX-00-00-00-05	0.00	
XXXX-00-00-00-06	0.00		XXXX-00-00-00-06	0.00	
XXXX-00-00-00-07	0.00		XXXX-00-00-00-07	0.00	
XXXX-00-00-00-08	0.00		XXXX-00-00-00-08	0.00	
XXXX-00-00-00-09	0.00		XXXX-00-00-00-09	0.00	
XXXX-00-00-00-0A	0.00		XXXX-00-00-00-0A	0.00	
XXXX-00-00-00-0B	0.00		XXXX-00-00-00-0B	0.00	
XXXX-00-00-00-0C	0.00		XXXX-00-00-00-0C	0.00	
XXXX-00-00-00-0D	0.00		XXXX-00-00-00-0D	0.00	
XXXX-00-00-00-0E	0.00		XXXX-00-00-00-0E	0.00	
XXXX-00-00-00-0F	0.00		XXXX-00-00-00-0F	0.00	
XXXX-00-00-00-10	0.00		XXXX-00-00-00-10	0.00	
XXXX-00-00-00-11	0.00		XXXX-00-00-00-11	0.00	
XXXX-00-00-00-12	0.00		XXXX-00-00-00-12	0.00	
XXXX-00-00-00-13	0.00		XXXX-00-00-00-13	0.00	
XXXX-00-00-00-14	0.00		XXXX-00-00-00-14	0.00	
XXXX-00-00-00-15	0.00		XXXX-00-00-00-15	0.00	
XXXX-00-00-00-16	0.00		XXXX-00-00-00-16	0.00	
XXXX-00-00-00-17	0.00		XXXX-00-00-00-17	0.00	
XXXX-00-00-00-18	0.00		XXXX-00-00-00-18	0.00	
XXXX-00-00-00-19	0.00		XXXX-00-00-00-19	0.00	
XXXX-00-00-00-1A	0.00		XXXX-00-00-00-1A	0.00	
XXXX-00-00-00-1B	0.00		XXXX-00-00-00-1B	0.00	
XXXX-00-00-00-1C	0.00		XXXX-00-00-00-1C	0.00	
XXXX-00-00-00-1D	0.00		XXXX-00-00-00-1D	0.00	
XXXX-00-00-00-1E	0.00		XXXX-00-00-00-1E	0.00	
XXXX-00-00-00-1F	0.00		XXXX-00-00-00-1F	0.00	

Up to **four Universal Stream Counter Reports** can be displayed at the same time as shown in the figure above. You can view each Universal Stream Counter's **DA** (Destination MAC Address), **Line Rate (Mbps)**, **Packets**, **Bytes**, **Broadcast**, **Multicast**, **IPCS Error**, and **CRC Error** on the **Universal Stream Counter Report**.

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